



SATURDAY, MAY 16, 1874.

CIVIL ENGINEERS' CLUB OF THE NORTHWEST.

Test Borings and a Tool for Making Them.

[Paper read before the Civil Engineers' Club of the Northwest, March 9, 1874, by E. C. Clarke.]

It is hardly necessary to speak to engineers of the desirableness, not to say need, of ascertaining in some way the nature of ground through, in or upon which are to be located tunnels, sewers, excavations or foundations, since its character forms such an important element in their cost and stability. The only question is: By what means can sufficient tests be most easily made? The apparatus which I propose to describe has been employed for that purpose with success for some years, and as numerous inquiries have been made as to its construction and use, it is thought that a brief account may be of

service to the profession. This tool, then, is designed for making exploratory borings, cheaply and with great celerity, to any depth not much exceeding one hundred feet, through earth, clay, sand or fine gravel, indicating any changes in the layers perforated, and, when desired, bringing to the surface specimens for further examination. It will not penetrate rock, and even a stone but a few inches in diameter proves a bar to its progress, as does also wood, if thick. Yet where such obstacles are not numerous, and by repeated trials it is possible to find a passage between them, the rapidity with which a boring can be made still renders the process an expeditious one.

The apparatus is very simple, as will be seen by a reference

to the accompanying plate. It consists in an auger with a jointed stem, and appliances for turning and raising it. The auger is forged from cast steel to the shape as shown (fig. 1), and then twisted and, though not necessarily, turned. A careful smith will be able to twist it sufficiently true and straight. There is no central screw point, otherwise it resembles a stout wood-auger, the cutting edges having a lip to make them load downward. It should be hardened, ordinarily at a dark blue heat, to keep it from dulling too rapidly; the degree of temper may be graduated to suit the kind of ground which it is expected to meet, sharp sand and gravel taking off its edge more quickly than earth or clay. Great care must be exercised to keep it from burning, but half a twist should be attempted at each heat. The rods (fig. 2), a convenient length for which is ten feet, are made of 1 1/4 inch bar iron, with 1 1/4 inch screw ends of forged scrap iron welded on. The auger is commonly welded to one of the rods (fig. 3), with a piece of scrap iron interposed between the steel and bar iron, and a female screw at the other end. On the careful fitting of the screws depends the strength of the rod. The shape and proportions as shown (fig. 4) have been found empirically by repeated trials to best answer the purpose. A special die should be prepared for the male screw, and it is well for the engi-

FIG.1 AUGUR AS FORGED 3 IN. 1 FT.



FIG.2

RODS

3 IN. 1 FT.



FIG.3

AUGUR ROD

3 IN. 1 FT.



FIG.4

MALE & FEMALE

SCREW ENDS

1/4 SIZE

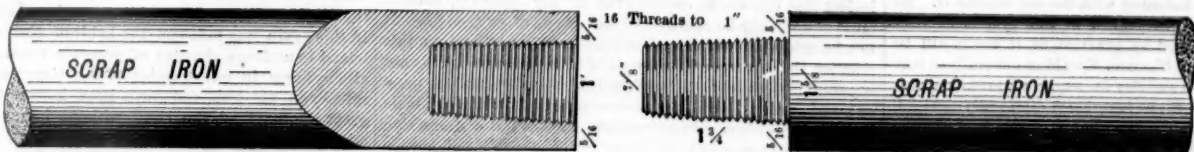
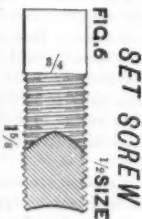


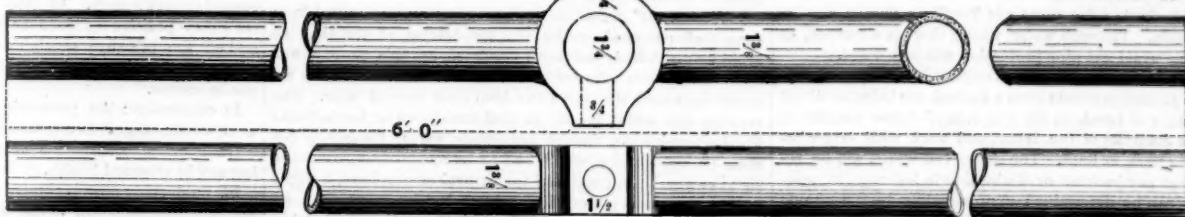
FIG.6 SET SCREW 1/4 SIZE



LEVERS

FIG.5

3 IN. 1 FT.

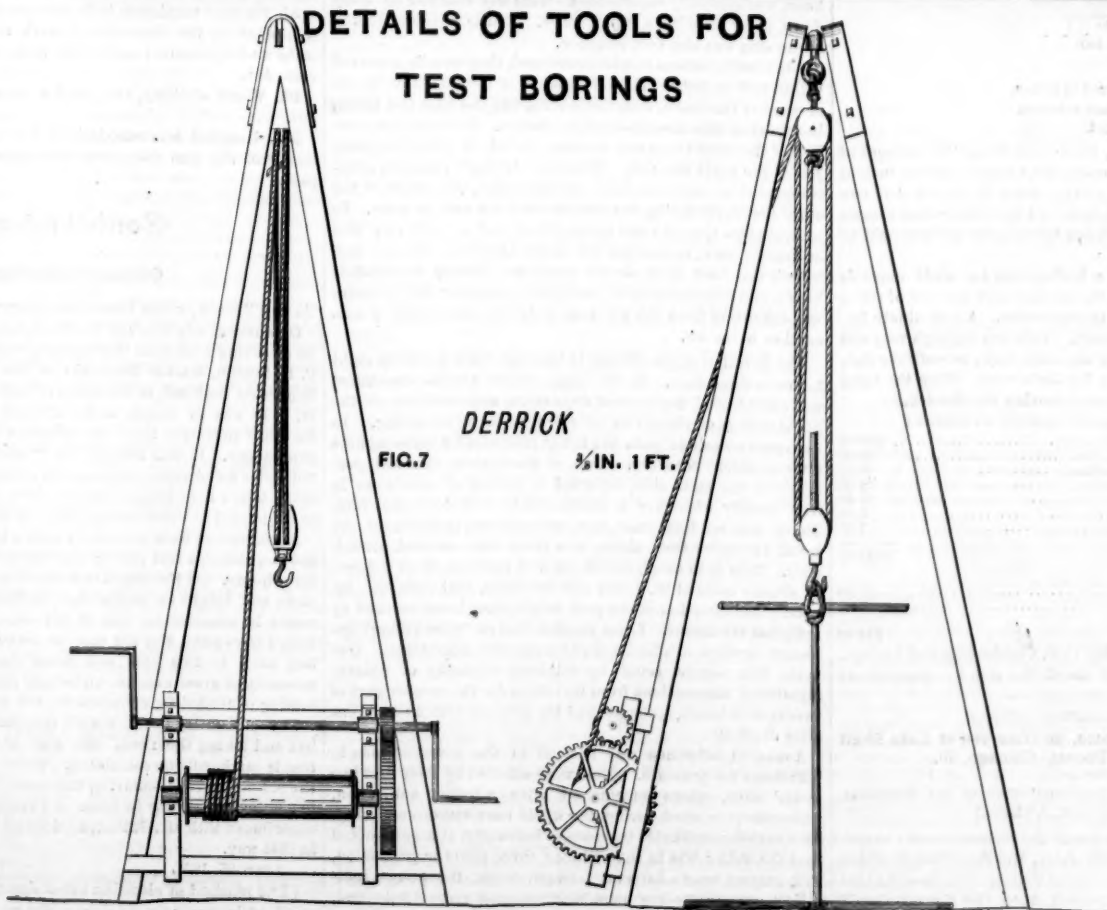


DETAILS OF TOOLS FOR TEST BORINGS

DERRICK

FIG.7

1/2 IN. 1 FT.





neer to own this himself, as it saves time and expense when more joints are needed. It will cost from six to eight dollars. The female screw is chased, which must be done with great accuracy. The end and shoulder of the outside screw must abut against those of the inside one. Screw-ends of Bessemer steel have been used with success. The levers (fig. 5), of which there are two, are made of gas-pipe welded to a solid ring, which fits loosely over the rod and is confined to it by a hardened steel set-screw, concave at its face. The form of derrick shown (fig. 7) is believed to be as suitable as any for raising the rod. It is hinged at the top (fig. 8), and can be taken apart for convenience in moving. In the bottom of the legs are short iron dowels, to keep them from slipping. Two double blocks and about 60 feet of 4-inch rope are required.

The method of making a boring is as follows: The auger-rod is set upright at the point desired, both levers having been previously slipped over it. The lower one rests on the ground, while the upper one is raised three or four feet and clamped by means of the set-screw. Two men turn the rod by this, while a third steadies it till well entered. To insure its going vertically for the first few feet, it is well to sight at it along a plumb line a short distance off. Four men constitute an ordinary working gang and relieve each other at intervals. Unless the ground is hard, two at a time will be sufficient for the first fifty feet. Care must be taken that the rod is never turned the wrong way, or a portion of it will be unscrewed and lost. Should the boring prove very hard, by raising the rod and pouring water into the hole it will be much facilitated. In raising the rod the derrick is placed *exactly* over it, and the upper lever being clamped, a rope sling is passed under it and attached to the lower block. The rod is then raised by the winch. When the upper section is well out of the ground, the lower lever is clamped to the top of the next lower section, and the upper one unscrewed by reversing the motion of its lever. One or the other of the levers must always be tightened in this operation, to prevent the rod falling back into the hole. On removing the auger, a portion of the soil last penetrated will be found packed in its grooves.

The way the nature of the ground met with is indicated is by its different jarring effects upon the rod, which will be readily perceived at the surface by taking hold of it as it turns, or with greater delicacy by listening with the ear against it. No special rules can be given in regard to this system of telegraphy. It must be learned by practice, as it easily will be even by one of no great intelligence. Speaking generally it may be said that through earth and clay the auger will turn comparatively smoothly; in sand a slight jumping motion will be noticed, more decided in proportion as the sand is closely packed; the grit of gravel will be plainly perceived. An increased rapidity of descent, without any noticeable change of ground, indicates moisture. In cases of doubt it is always possible to draw up the rod and ascertain the character of the soil with certainty by inspection. The rod may be left in the ground overnight or longer if desired; a few turns will free it so that it can be drawn up again. Through water where there is a current, as in a river, the usual gas-pipe protection will be needed.

Where a great depth of boring is required, or extreme hardness of the ground prevents even a limited one being attained without danger of breaking the rod, it is of course possible to increase the diameter of the latter, and work with larger levers, or more men, or both. The size of rod which will be required to bear any increase or diminution in leverage, or number of men, can be determined approximately by the simple formula

$$d = \sqrt{\frac{60n \times l}{500}}$$

in which

$d$ —diameter of rod in inches,  
 $n$ —number of men at levers,  
 $l$ —leverage in feet,

and 500 and 60 are constants, the former being the moment of rupture by torsion in foot-pounds, for a round bar one inch in diameter, and the latter the average force in pounds that one man can exert in pushing, determined by independent experiments. The proportion as shown between the parts should be preserved.

The rapidity with which a boring can be made depends upon its depth, hardness of the ground, and number of times the rod is drawn up during the operation. A hole ninety feet deep has been sunk in two hours. This was through very soft ground, however. Ordinarily one such hole, two of fifty feet, or three of thirty, would be a fair day's work. When the holes are far apart, some time is lost in moving the derrick.

The first cost of apparatus will be about as follows:

130 feet of rod, at 70 cents.....	\$94 00
2 augers, at \$7.....	14 00
2 levers, at \$4.....	8 00
Derrick.....	14 00
Winch.....	45 00
2 blocks, at \$4.....	8 00
60 feet of rope.....	7 00

and daily expenses:

1 foreman, say.....	\$5 00
4 laborers, at \$2.....	8 00
	\$13 00

The writer is indebted to Mr. E. S. Chesbrough and to Capt. A. S. Bergh, an expert in the use of the rod, for suggestions in preparing the above.

Record of the Caisson Disease, as Observed at Lake Shaft of New Water Tunnel, Chicago, Ill.

[Paper read before the Civil Engineers' Club of the Northwest, March 9, 1874, by E. C. Clarke.]

In view of the increasing use of the plenum process in constructing foundations through water, and the obstacle which the so-called caisson disease creates thereto, it is thought that any observations, however limited, upon the disease should be recorded, so that from a number of such records may at

last be obtained some definite knowledge of its causes and character, and the best means for its prevention and treatment. The disease may be said to have two aspects, as it is regarded by the physician, or the engineer. It is the province of the former to investigate its special nature and pathological effects, with the precise and proximate causes which produce them, and to seek remedial agencies for their alleviation. The latter chiefly regards it as a hindrance to his work, and desires to learn when, and to what extent, he may expect to be impeded by it, and how he may avoid the difficulties it occasions—chiefly because, apart from his professional character, he cannot ignore the health and comfort of those to whose labor he owes the fruition of his plans. The facts here given in regard to the disease, as observed at the Lake Shaft in the crib at Chicago, are offered, not as new, but as additional matter, for the consideration of those better qualified to make use of them, and where general observations are indulged in, they are to be understood as only such as might suggest themselves to any person regarding the subject in its unscientific aspect.

The work was carried on under pressure for five weeks, its intensity varying from thirty to forty pounds per square inch; about thirty men in all, exclusive of visitors, were subjected to it, and some twenty-five cases of caisson disease were noted.

While "locking in," which was accomplished at the average rate of six pounds per minute, the usual effects were produced; such as pain in the ears, forehead or jaws, the former of which was relieved by swallowing. Painless bleeding of the ears was produced in the case of one man. The heat engendered in the air-lock during this operation was sometimes very unpleasant.

Once in the cylinder, no abnormal condition of the system was noticed, the only annoying feature being the amount of smoke given off by the lights. This penetrated every cavity of the head and throat. Lard oil in miners' lamps was almost intolerable, refined tallow was little better, and sperm and paraffine candles, which were finally used, gave only partial relief. The necessity of hand lamps, while attempting some difficult mining operations, precluded the use of fixed lights with an exhaust pipe above them. Dr. Jaminet, at St. Louis, insists that this smoke cannot exist in any quantity, since it must of necessity be changed by the excess of oxygen present to a harmless amount of carbonic acid. What effect upon this reaction the corresponding excess of nitrogen may exert is not apparent. Certainly the fact remains, that the smoke is present, and is very distressing to the comfort of those who inhale it. The doctor's argument reminds one of the conversation between the lawyer and his client. "They can't put you in jail for that," says the former, "it's impossible." "But I am in jail," replies the latter. The regular length of shift was two hours, but this time was frequently exceeded. Three shifts in twenty-four hours constituted a day's work.

"Locking out" caused no unpleasant sensations, except from damp and cold produced by the rarefaction of the air. To avoid being chilled, the time occupied by this process was reduced from five minutes to one minute, or as fast as the air would discharge through a two-inch cock opened wide. The rapidity with which the air rarefied was shown by the fact that the discharge pipe, though previously warm, frequently became choked with ice, which had to be removed to permit the air to escape. On regaining the natural atmosphere, a slight feeling of nervous prostration, seldom lasting more than an hour, was generally experienced. This was relieved by lying down, or by drinking a cup of coffee. A disagreeable itching of the skin was also very common.

When more serious results intervened, they usually appeared within half an hour. These consisted of severe pains in one or more of the limbs, sometimes involving the neck and trunk, in the latter case accompanied by nausea. In more than one-half of the cases there was present partial or complete paralysis of the parts affected. Two cases of slight paralysis unaccompanied by pain occurred: one of an arm, the other of the optic nerve, rendering the patient blind for half an hour. In several cases the pain was intermittent, and seemed very like ordinary cramp, contorting the limbs affected. In one case it took the form of a severe headache, lasting twenty-four hours, and increasing to a paroxysm whenever the pressure was exhausted from the air lock near by, producing a concussion in the air.

The duration of the disease in its acute form was from eight hours to three days. In the more severe attacks discomfort was experienced for several days more, and swellings of the limbs were sometimes two or more weeks in subsiding. In two cases occasional pain was felt at intervals for three months after apparent recovery. One of these men, who was paralyzed in the right side, reported a feeling of numbness in that locality whenever a steam whistle was blown near him. There was no fatal case, nor, owing to the isolation of the work, two miles from shore, was there any medical attendance. This is to be regretted, as it is believed from reports of similar cases at St. Louis and Brooklyn, that both the intensity and duration of the pain might have been lessened by judicious treatment. Local applications of "pain-killing" liniments seemed to afford a slight temporary alleviation. One man, who sought relief by drinking copiously of whisky, remaining unconscious from its effects for the greater part of twenty-four hours, accomplished his purpose with no apparent after ill effects.

A marked difference was noticed in the power of men to withstand the pressure. Some were affected by their first two hours' shift, others succumbed after a longer subjection, while others worked during the whole time without suffering. As a rather remarkable instance of immunity, it may be noted that the writer was in the cylinder three shifts in succession, with only an hour's interval between them, the gauge indicating over thirty-five pounds, remaining respectively two, two and five hours. He only experienced a slight pain in one

arm and shoulder, while five men who accompanied him on the last shift were all severely affected, two of them offering the most serious cases which occurred during the work. This fact first suggested the idea that perhaps the amount of labor performed by a man while under pressure was an element in deciding his liability to suffer from its effects. It seems natural to suppose that the exhaustion and relaxation incident to severe labor should render the system more liable to be influenced by abnormal conditions. The case of Doctor Jaminet, at St. Louis, is the only one on record where any one other than an actual workman has suffered from this disease; and in that case the doctor remained in the air chamber a longer time than he had considered safe for the men. Considering the number of engineers, superintendents, and visitors, who have been subjected to the pressure, it seems as though, according to the doctrine of chances, some of them should have felt its ill effects. The foreman at the lake shaft, who was in charge of similar work at Omaha, states that he has never suffered, except after having been actually at work. The men considered their labor under pressure more exhausting than in the open air, and the writer's experience agreed in this. The point seems worthy of further investigation. A return under pressure invariably banished all symptoms of the disease, but, except in three instances, these reappeared on coming out of the air-lock.

Dr. Jaminet and Dr. Smith, of Brooklyn, in their investigations of this subject, have noted several physical and physiological conditions of the system, which, in their opinion, seemed to render the subject more or less liable to the disease: such as age, and weight, condition of the stomach and bowels, etc.; and have drawn up rules for guidance, in accordance with them. In our limited experience, beyond the fact mentioned above as suspected but not verified, we were unable to discover any predisposing cause other than a too prolonged stay under the pressure. Any or all of their rules might be violated with impunity; this alone was almost certain to bring retribution. Our cases were evenly divided between young men and middle-aged, spare and heavy. It was customary to have one shift before breakfast, and no case occurred at that time. It is noteworthy in this connection that some divers, who are subjected to the same conditions, prefer going to their work with a comparatively empty stomach. No increase in the number of cases followed the practice of rapid locking out. In this again was followed the habit of divers who are accustomed to undergo changes of pressure amounting to several atmospheres in one quarter of the time usually considered safe in an air lock, and have been known to come up from great depths "by the run" without injury; although it is possible that there may be some difference of condition which renders the analogy an imperfect one. Certainly, in a diver's dress, the writer has experienced less discomfort going down thirty-four feet in fifteen seconds, than the same increase of pressure, many times more gradually incurred, would have caused in an air lock. At least it would seem as if the doctor's very positive opinions as to the necessity of letting on and off the pressure slowly must be due rather to *a priori* reasoning than to any observed ill results arising from the opposite course.

In conclusion: the precautions which experience on this work would suggest in any future similar undertaking are:

- 1st. Physical examination of all workmen employed, rejecting any in unsound health.
- 2d. Subjecting new workmen to short shifts, in order to detect any predisposition to the disease.
- 3d. Fixing a maximum time, governed by its intensity (and somewhat by the character of work to be performed) to remain under pressure; and rigid insistence of the rule not to exceed it.
- 4th. Warm clothing, rest, and a cup of coffee on coming out.
- 5th. Hospital accommodations for those affected, and a supply of the less dangerous anodynes, to relieve excessive pain.

## Contributions.

### Cleaning Boiler Flues.

TO THE EDITOR OF THE RAILROAD GAZETTE:

On a recent trip through the West, I saw a novelty in a device for removing scale from the flues of a locomotive boiler, used by P. R. Sutton, Master Mechanic of the Chicago, Dubuque & Minnesota Railroad, in the shops of that company at Dubuque, Ia. It was so simple and a principle in such common use for other purposes that one wonders it has not come into general use. It was simply the "tumbling-box" in use at foundries for cleaning castings. In construction it is a cylindrical box, a little longer than the flues, fixed upon a shaft and so connected to the shafting that it is made to revolve slowly.

A quantity of flues are put in with a lot of small scrap iron, the box closed, a belt put on and the box revolves for two or three hours. At the end of this time the flues are taken out as clean and bright as on the day of their manufacture. The result is superior to that of any other mode of cleaning the flues I have seen, and the cost is certainly much less. The box itself in this case was made cheaply, and there is no necessity of great expense under any circumstances. A little belting is needed for connections, but that will last a life time.

The only outlay in the work is the placing the flues in the box and taking them out. The cost of driving it is so small that it can hardly be calculated. When we compare this with the old methods of removing the scale, by handwork, or even in a lathe, the saving in labor is evident. It is not a mere experiment with Mr. Sutton; he does all his work of that kind in that way.

APRIL 25, 1874.

[The method of cleaning tubes described by our correspondent is not new, as seems to be his impression. It



has been in use on a number of roads to our knowledge for three or four years, and probably a much longer time.—  
EDITOR RAILROAD GAZETTE.]

The Victoria Bridge—An Explanation by Mr. W. W. Evans.

NEW YORK, No. 63 Pine street, May 11, 1874.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I notice in your issue of May 9 a letter from Mr. E. P. Hannaford, Chief Engineer of the Grand Trunk Railway of Canada, in which he says that the remarks I made in a letter I wrote near two years since, about the sinking of the centers of spans of the Victoria Bridge, are not correct. If I have committed an error, I wish to make a most humble apology, for if there is any main spring to my actions, it is based on a desire to develop truth, and free myself from prejudice while investigating professional questions. The letter referred to, I wrote to a friend without the intention of ever seeing it in print. I have been for near thirty years connected with the construction of bridges of iron, and have been for a long time an unbeliever in the merits, economy or propriety of bridges depending on rivets for their main connections. This conviction becomes stronger with time, and with the many developments that are continually taking place in this important industry. My authority for stating that the spans of the Victoria Bridge had sunk over six inches, I got from the large, elegant and elaborate work on this bridge by James Hodges, Engineer, published in London in 1860 by John Weale. In the latter part of the letter press volume, there are three tables, on pages 83, 84 and 102, in which I find the data given in the following table:

Number of spans....	Length of timber between bearings....	Weight of one timber....	Camber when laid....	Camber before wedges were struck....	Camber before testing....
10	245 ft. 10 in.	311 11 8 5	4 1/2 in.	3 in.	-1 1/2 in.
13	330 ft.	687 6 0 11	6 "	4 1/2 "	-4 "
15	245 ft. 11 in.	309 18 2 6	4 1/2 "	3 1/2 "	-1 1/2 "
19	240 ft. 8 in.	288 19 2 5	4 1/2 "	1 "	-1 1/2 "
22	242 ft. 4 in.	294 1 2 29	4 1/2 "	4 1/2 "	+2 1/2 "

From the above it will be seen that the camber with which the spans were laid was 4 1/2 in. and 4 1/2 in. (except center span), and that the camber before testing was in four of the spans quoted a minus quantity; this added to the original camber in span No. 19 makes 6 1/2 inches, in span No. 15 just six inches, and in center span 11 inches. If I am wrong in stating this case, and in reading the figures as I did, I would like to be corrected. I could not read it to mean that the figures given in column of "Camber before testing" were to be added or deducted from original camber, for in this case, as the sign is a plus sign in span 22, this would make this span 2 1/2 inches higher than original "camber," and in span 19, as the "camber" was only one inch before the wedges were struck, the span must have raised at center 3/4 of an inch after the wedges were struck: this certainly could not be the case. The description says of center span that the original camber was 6 inches, and that the camber due to weight was 7 1/2 inches; from this I infer that the span was designed to lose all its camber and 1 1/2 inches more; but from the table, as I read it, it lost 4 inches more. In the table of deflections resulting from test loads the permanent set is not given. The deflections are given, and they are good, but the table does not show how much of these deflections was recovered on removing the test loads.

In the pin-connected bridges constructed by first-class builders in this country, such as are now being constructed of great span and in great numbers, to be erected all over the country and for export to South America, when we lay out the work to have a certain camber, we expect it to retain this camber, within a very small fraction, after the wedges are struck, and then when tested to recover its deflections on removing the test load.

As to my remark that much anxiety was felt for the security of the Victoria Bridge, I am sorry it ever got into print. I had heard the remark several times, and, seeing in a large work on this bridge, published by the Engineer, figures that showed a subsidence at centers of eleven spans greater than the original camber, I felt that there was some reason to feel anxiety, as we all know the enormous surface exposed in this bridge to the atmosphere and the ravages of oxygen, that great friend and foe of everything animate and inanimate.

W. W. EVANS.

Transportation in Congress.

In the Senate, on the 6th:  
Mr. Fenton, of New York, presented a remonstrance of the citizens of New York city, Albany, Buffalo and Rochester, N. Y.; Cleveland and Toledo, Ohio, and Erie, Pa., engaged in the transportation of swine from the West to the East, praying that those animals be exempted from the provisions of the House bill to prevent cruelty to animals while in transit by railroad or other means of transportation within the United States. Referred to the Committee on Transportation.

In the Senate, on the 7th:  
Mr. Allison, of Iowa, introduced a bill amendatory of the act to aid in the construction of a railroad from the Missouri River to the Pacific Ocean. Referred to the Committee on Railroads. It provides that the bridge across the Missouri River, from Omaha, Neb., to Council Bluffs, Iowa, shall be operated as part of the continuous line of the Union Pacific Railroad. It also requires the company to make semi-annual reports to the Secretary of the Interior of the amount required by it monthly for tolls and charges for the use of said bridge, the first report to be for the six months ending June 30, 1874.

In the Senate, on the 11th:  
Mr. Ramsey, of Minnesota, presented a petition of the Northern Pacific Railroad Company asking a modification of the charter granted it, accompanied by a bill amendatory and

supplementary to the acts of Congress granting lands to aid the construction of the Northern Pacific Railroad. Referred to the Committee on Railroads.

Mr. Conkling, of New York, presented a memorial of the citizens of New York interested in the transportation of live stock, asking that swine be exempted from the provisions of the bill requiring live stock to be unloaded at certain intervals while being transported.

Mr. Sherman, of Ohio, presented a similar petition from dealers in Cincinnati, both of which were referred to the Committee on Agriculture.

In the House, on the 11th:

Mr. Bradley, of Michigan, from the Committee on Public Lands, reported the bill declaring forfeited to the United States all lands granted in 1867 to the Stockton and Copperopolis Railroad in California which have not been patented, the grant having expired by limitation. Passed.

THE SCRAP HEAP.

Prices of Rails in April.

Bigelow & Johnston report the prices of foreign rails in New York at \$51 to \$54 gold, of American \$60 to \$65 currency. There were no imports at the port of New York, and have been none this year, but 27,388 tons were imported during the corresponding four months of 1873. Steel rails are quoted at \$95 to \$97.50 gold for foreign and \$100 to \$102.50 currency for American. The imports of steel at New York were 8,127 tons during the month: during the four months they were 24,082 tons against 25,715 in 1873. For old rails \$38 to \$39 currency is quoted for T. The imports were 557 tons for the month and for the four months 662 tons against 4,498 in 1873.

The firm's "remarks" on rails are as follows:

"New Rails.—The market for foreign remains in the same dull state, notwithstanding that some parcels can be bought for cash at exceedingly low figures. There seems, however, to be a prevailing idea that the bottom has not yet been reached, and buyers for cash are therefore very shy. In American there have been a few transactions, mostly on time, but at prices which are not commensurate with the risk. The business, generally, is in a very unsatisfactory state. Steel rails are in moderate inquiry, and with the lower prices abroad can now be offered at comparatively low rates, but the same influences affecting the demand for iron are felt more or less in this article also.

"Old Rails.—The demand is very light, and prices have yielded. Double heads can now be bought in Europe at 25 francs per ton, f. o. b., but there is no disposition to purchase for a moment, except at lower figures than this cost warrants."

Sanborn & Gates' Car Ventilation.

A trial of this system of ventilating cars was made with an excursion train carrying a number of railroad men on the Boston & Albany Railroad on the 5th of May. The inventors give the following as the four objects kept prominently in view in designing the apparatus:

"1. To secure the entrance into and exit from a car of a sufficient supply to keep the air pure and healthful at all times.

"2. To keep the whole body of air in a car in constant motion, and the fresh supplies so distributed to every part, and tempered if need be, that cold drafts or sheets of air may be avoided.

"3. To have all the air which is introduced into the car cleansed from its accustomed impurities of dust from the road-bed and cinders from the engine.

"4. To reduce the mechanical appliances to so simple a form, that while they are competent for the effective control of the air, they shall be substantially automatic in their action and require the least amount of attention from the employees of the road."

The following description of the apparatus and its operation is also by the inventors:

"Upon the centre of the axle-tree of one of the trucks is securely fastened a driving-pulley 22 1/2 inches in diameter. From the driving-pulley runs a small triangular belt 1 1/2 inches wide over another pulley 4 1/2 inches in diameter, attached to a fan made of galvanized sheet iron upon a steel shaft. This constitutes the entire mechanical adjustment for putting in motion the required supply of air.

"Ordinary car wheels are 33 inches in diameter or 8.64 feet in circumference; hence, in passing over a mile of track the wheels will make 611 revolutions, and the size of the pulleys being as 1 to 5, the fan will revolve 3,055 times; that is, when the train moves at say, one-third of a mile per minute, or 20 miles per hour, the fan revolves at about 1,000 per minute, or 1,500 at 30 miles per hour.

"To conduct the air, which has been excited and put in motion by the centrifugal force of the fan, to the top of the car, and to distribute the same evenly, the fan is surrounded by an elongated sheathing of wood which may be seen under the car, and which is continued by a tin conducting tube through the closet to the distributing pipes, which in turn emit the air into the car.

"This sheathing being air-tight, the fan is, so to speak, hermetically sealed, and none of the outside air can get to it or feed it except that which passes through the air-chamber. Now, since all the air which finds its way into the air-chamber must pass through the fine screens, which are inserted in place of the window glass, the dust and cinders must be left outside the car.

"Therefore the action is as follows: when the car is in motion in either direction (it makes no difference), there is a constant taking of this strained or filtered air by the fan and driving it through the tubes on each side of the dome, where it is forced into the car at such intervals as to secure its complete distribution. The constantly augmented supply in the dome causes a downward flow within the car, which resists the tendency of the heated air to escape upward, and thus utilizes the heat instead of wasting it; equalizes the temperature over the car, and finally forces the air out through the registers along the aisle.

"Without a resort to this method of counteracting forces or tendencies, which is now for the first time fairly provided for in a railroad car, the practical difficulty of properly heating in winter the large amount of air required, would be well nigh insurmountable.

"As to the quantity of air driven into the car by this arrangement, it may be stated roughly that when the car moves at full speed the delivery each minute is equal to the cubical contents of the car exclusive of furniture. If less is needed a single movement of the cut-off or damper in the air chamber reduces the amount as required or shuts it off altogether. The maximum quantity may also be indefinitely increased by augmenting the size or speed of the fan.

"As important incidents or adjuncts of this system, though not necessarily parts of it, should be mentioned the facilities for attenuating the air either by heating or cooling, moistening or drying.

"Within the passage-way for the air leading to the fan may be placed a stove or a cooler, or an evaporator, according to circumstances, each very simple but quite effective for changing the condition of the air within the car, as may be seen."

The experiments were made with a view to illustrating the different conditions existing at different seasons of the year. Among the persons present were Onslow Stearns, President of the O. C. B. R.; Isaac Hinckley, President P. W. & B. R. R.;

J. B. Winslow, late of the B. & L. R. R.; Superintendent A. A. Folsom, B. & P. R. R.; Vice-President Lincoln, General Manager Bliss, and the Superintendents of the B. & A. R. R.; Hon. Jacob H. Lord, General Underwood, Edward Atkinson and many other gentlemen well known in their professional and business relations.

The following results of experiments performed on the trip were reported by the gentlemen who acted as a committee of observation, who were Drs. J. H. Hazleton, Samuel A. Green and Joseph Burnett, Messrs. Edward Atkinson and D. C. Ralston:

"Cascarilla bark was burned in the air chamber and diffused instantly throughout the car.

"A small quantity of cologne was placed in the air chamber, and the odor was immediately perceived in every part of the car.

"The same effect was made visible by smoke made in the air chamber, which found its way at once to a uniform diffusion in the car. The air was then shut off, and the car was filled with a dense cloud of smoke. Upon turning on the air the smoke was principally removed in three minutes, and in 6 minutes 30 seconds the car was completely cleared.

"Notwithstanding the large amount of air taken into the car, there was neither dust from the road-bed nor cinders from the engine.

"The readings of the hygrometer at different hours of the day were as follows, showing that the condition of the air at any time can be greatly modified and controlled by this system:

	Dry bulb.	Wet bulb.	Evaporating power.	Relative humidity.
At 11 o'clock a. m. showed ..	75°	58°	17°	30 p. c.
At 12 m. showed.....	69°	54°	15°	31 p. c.
At 12:22 p. m. showed.....	68°	54°	14°	34 p. c.
At 12:37 p. m. showed.....	68°	57°	11°	47 p. c.

"The above changes were effected by means of a heater and an evaporator within the air chamber.

"Several of the party visited other cars in the train, and on returning remarked the perceptible difference in the purity of the atmosphere in favor of this car."

The Westinghouse Brake in England.

The Engineer of May 1 gives an account of some experiments made on the London, Chatham & Dover road with a train equipped with the Westinghouse brake. The train consisted of a tank engine weighing 43 tons, one four-wheeled and one six-wheeled "guards" van, and ten passenger coaches, having a total estimated weight of 123 tons. Fourteen stops are reported, at speeds varying from 28 to 53 miles an hour, and with varying gradients, made in from 12 to 20 seconds and within distances from 180 to 260 yards. At 45 miles an hour and on the same grade the air-brake brought the train to a stop in 17 seconds and within 145 yards, while the hand-brakes required 89 seconds and about 1,000 yards. Engineering of the same date says in an editorial article: "The Midland Railway Company have, indeed, gone beyond the experimental stage with the Westinghouse brake; the Northeastern and Caledonian systems are fast fitting up trains with the same apparatus; Mr. Speck, the able Locomotive Superintendent of the Metropolitan District Railway, is fitting it to the whole of his stock; the Crystal Palace trains of the London, Chatham & Dover Company also have this brake, and several other railways are waiting the result of more experience with it in this country before placing it on their lines." After comparing it with two other systems now being tested in England—Clark's continuous and Barker's hydraulic brake—it continues: "That the Westinghouse brake will be called upon to play as important a part upon English as it is now doing upon American railways is more than probable, and the promptness which has been generally shown on the part of railway managements in this country fully to test the actual merits of the appliance is a guarantee of the desire to carry out, without loss of time, those reforms which are most urgently required for the safety of the public."

ANNUAL REPORTS.

Great Western of Canada.

The report of the directors for the half-year ending with January last says:

"The receipts on capital account during the half-year to January 31, 1874, amounted to \$441,168. The total receipts on capital account amounted on January 31, 1874, to \$2,113,850. The charges to capital account during the half-year amounted to \$287,354. The total expenditure to 31st January, 1874, amounted to \$2,103,736, leaving a balance at credit of capital account of \$10,114. The receipts and expenditures on revenue account for the half-year have been as follows:

Gross receipts.....	\$235,916
Working expenses, including renewals, taxes, rents and all charges.....	430,080
	\$196,836

From which has to be deducted—	
Interest on bonds, &c.....	\$37,871
Discount and charges on American currency, &c.....	27,216
Amount set aside for renewal of ferry steamers.....	3,000
Alteration of gauge account.....	9,100
Cost of repairing damage caused by floods.....	2,348
	\$130,531

Add profit on working leased lines.....	\$1,494
Balance of interest account.....	2,971
Surplus from last half-year.....	5,924
	\$9,489

Amount available for dividend.....\$25,793

The dividend for the half year on the 5 per cent. preference stock amounts to \$5,692; and from the balance of \$20,101 the directors recommend a dividend on the ordinary shares at the rate of 2 1/2 per cent. per annum, which will absorb \$5,741, leaving \$4,360 to be carried forward to the next half year."

Compared for the same period of the preceding year there was an increase of gross receipts of \$29,870, or about 5 per cent., but the tonnage increased in by 26 1/2 per cent, and the train mileage by 26 per cent, while the freight receipts were but 12 1/2 per cent. greater, and the working expenses 14 2-3 per cent. greater, leaving a surplus less by \$23,667 than for the previous year, while the charging, for the first time, the interest of the cost of the new Glencoe Loop Line to revenue added \$60,335 to the interest account, so that the surplus divisible among stockholders was \$24,000 less. The working expenses were 68.71 per cent. of the receipts.

The last section of the Loop Line, from Welland Junction to the International Bridge, was opened for traffic December 15. The "Allanburgh Branch," nine miles long, began August 19 and opened November 3, unites the Loop Line with the main line, and cost \$37,750. The Loop Line cost \$136,496 more than the estimates, chiefly on account of large additions to the sidings, stations, wharves, etc., and a rise in prices of labor and materials. There were also expenditures of \$43,823 for second track, \$25,328 for new sidings and works on the main line, \$22,500 for car ferry-boats, \$21,019 for locomotives and \$78,833 for cars. In view of these expenditures on account of capital the directors asked authority to issue a balance of \$233,719 of 5 per cent. preferential debenture stock, and \$320,000 of 5 per cent. preference stock (which was granted). A special meeting is to be held soon to hear the report of an investigating committee appointed at the preceding half-yearly meeting.





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## Editorial Announcements.

**Addresses.**—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

**Contributions.**—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

**Advertisements.**—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

## THE RAILROAD PROBLEM.

An unusual degree of attention has within the last year been given to the question of transportation on our railroads. Their charges and the relations which they bear or should bear to the public have been made the subject of many discussions and some legislation. This subject has been taken up with zeal, if not with much discretion, by the farmers of the West. It has been discussed in Congress, and legislation is now pending; while there are several voluntary associations formed and forming throughout the country to take action in the matter. In fact, there seems to be a serious and growing apprehension in the public mind lest the railroads become too rich and too powerful for the welfare of the country, and a belief that the present is a proper time to provide safety for the future.

Meanwhile, almost nothing has, until quite recently, been said by representatives of the railroads, and this no doubt has led the public to believe that they had no good arguments to advance. The question of railroad transportation and charges, and their relations to the community, is at best an intricate and difficult one. It is not easily mastered by experts, much less by the farmers or the politicians who have thus far mainly carried on the discussion. It is known, indeed, that not all the railroads are prosperous or profitable, that the great successes are few, and that many roads bring no returns whatever upon the capital invested in them; but the reasons for this state of things are not very clearly understood, and there is danger that injustice shall be done to many roads in the endeavor to deal alike with all, and to apply arbitrary rules under dissimilar circumstances of traffic.

It would, in consequence, seem to be expedient for the owners and managers of the railroads to take the public into their confidence a little more fully than they have hitherto seemed willing to do; to exhibit their real profits and condition, the cost and peculiarities of their traffic, and the possible economies which can be introduced. We shall take pleasure in opening our columns to papers upon such subjects, and we invite public and candid discussion on the part of railroad and other correspondents upon such questions as the following:

1. Can competition among the railroads be permanently relied upon to limit the local or other rates to equal and fair charges?

2. What is the actual cost of through and local freights, of the various classes for which different charges are made, and how can it be reduced to a minimum?

3. How can the burden of transportation for both through and local business be most equally and equitably distributed among the patrons of the road?

4. Shall the railroads be managed wholly as private enterprises, and for the single benefit of the owners, or, having been entrusted with important and exceptional powers by the legislatures, shall they be administered to a certain extent as trusts, for the joint benefit of both the owners and the public?

5. Why have most of the laws hitherto passed in this country to regulate charges on railroads proved either inoperative or mischievous?

6. How shall the public be protected against unjust and arbitrary charges, without injuring the railroads or depriving them of the incentive both to economy and to the adoption of improved methods of working, in the hope of fortuitous profits in prosperous years?

We believe that, upon the whole, both the people and the managers of the railroads desire to deal fairly and justly by each other, and that their present antagonism proceeds from ignorance of the real facts in the case. If met fully and frankly, it is probable that the present agitation may be made to result in placing upon a more profitable, as well as a better and safer basis, the relations between the railroads and the public at large, as represented by the political state.

## CONGRESS AND TRANSPORTATION.

Among the earliest motions introduced during this session of Congress were some relating to resolutions and bills concerning transportation. Several members took occasion to put on record their convictions of the authority of Congress to legislate in almost any manner concerning transportation, and several sweeping measures were proposed having for their object the reduction of the charges made by railroad companies.

Special meetings of members zealous for transportation legislation were held, forming a sort of distinct party on this question. Western members especially seemed in haste to do something, or to seem to do something, to cheapen transportation, either by compulsion of the railroads or otherwise, and the speeches made and bills and resolutions introduced so frequently early in the session denoted eagerness "to make a record" rather than anything else.

Of the propositions made hitherto, three are most prominent. The first of these is the report of the House Committee on Railroads and Canals, made by its Chairman, Mr. McCrary, of Iowa, which argued at great length in favor of the authority of Congress to "regulate railroads" under the authority of that article in the Constitution which provides that Congress may regulate commerce between the States, and made the broad assumption that the regulation of commerce includes the fixing of the charges for transportation without the consent of the carriers. This report was accompanied by a bill which provides for the establishing of "uniform maximum rates" by a Commission of nine members, one for each judicial circuit of the United States, and is therefore identical in principle, so far as the regulation of charges is concerned, with the existing Illinois law.

The second project is that presented by another member of the House Committee on Railroads and Canals, Mr. Hurlbut, of Illinois. This looks for relief by the construction of a double-track freight railroad from New York to Council Bluffs, with branches to Chicago and St. Louis, and provides for securing this road by a subsidy of \$40,000 per mile from the Government—a scheme of which we said something two weeks ago.

The third report is that of the Senate Transportation Committee, a summary of which we published last week. This committee is a special one, appointed near the close of the last session of Congress, and instructed to sit in various parts of the country during the vacation, to hear complaints and arguments in favor of transportation reforms and improvements. To it also was referred the claims of the railroad companies for greater compensation for hauling postal cars.

This Committee's report, containing reports of its hearings in different parts of the country, forms a very large volume, but the abstract of it given in Mr. Windom's speech and published in this and other journals assumes to give its conclusions as to the general transportation problem. It states the remedies proposed for the evils complained of as four: Free competition of railroads, as at present; direct Congressional regulation; indirect regulation by the working of one or more lines by the Government; the opening of new or the improvement of old water channels. As to the powers of Congress, the Committee declares that Congress has full authority to "regulate inter-State transportation by railroads," and in the exercise of that authority employ whatever means may be necessary; but it does not define the significance of the term "regulation." It specifies among the legitimate constitutional means of regulation the prescription of the

rules governing transportation between the States, the appropriation of money for the construction of railroads and canals, the incorporation of companies for constructing them, the exercise of eminent domain in a State to provide for such construction, and the assumption of any existing railroad and canal for the public use on paying just compensation therefor.

As to the merits of the several remedies, it says that competition has failed, that direct Government regulation has failed in almost all cases, though it recommends the publication of rates, the enforcement of a guarantee of delivery of the amount shipped, and the prohibition discriminations against persons or places. It thinks a Government freight railroad might be able to carry grain for ½ cent per ton per mile; but that not less than three would be necessary to serve all sections of the country, and that these would cost too much—\$250,000,000 or more. The most promising of all remedies it believes to be the construction and improvement of water routes to the sea, and of these it recommends four—one from New York to Lake Ontario or Erie—that is, an improvement of either the Oswego or the Erie Canal—the others the proposed James River & Kanawha Canal, the proposed "Atlantic & Great Western Canal," by way of the Tennessee to some point in Tennessee or Alabama, and a canal thence southward to some stream flowing into the Gulf or Atlantic, and the improvement of the Mississippi. All these, it thinks, may be accomplished for \$155,000,000, requiring an expenditure of \$20,000,000 to \$25,000,000 a year.

The report fails to mention the fact, however, that a few miles of canal in the Dominion of Canada, which that country is already working upon, will open a much shorter and cheaper water route to the sea than any it recommends, one which will answer the demands of that part of the country which most needs cheaper transportation, and the only section which can give a costly water route traffic enough to support it, and one which, adequately carried out, would be almost sure to render useless and unused all the costly works which the committee now recommends, at least for that heavy produce traffic for which it recommends them, and which is the only sufficient justification of any costly water route.

None of the schemes for spending money, which but for the panic would have been urged upon Congress with great energy and probably enough with success, are definitely recommended for this year. Their advocates seem to have brought them forward rather with the hope of carrying them through hereafter than of any immediate success. If the country is reasonably prosperous next Winter there will no doubt be a resolute attack on the treasury in favor of one or more of these schemes; the gentlemen whose pride and glory (and profit) it is to "develop the resources of the country," are always ready to urge all "great national undertakings" which involve tens and hundreds of millions of dollars, whether they be tunnels through the Rocky Mountains or railroads to the North Pole.

Some valuable work has been done by the Senate Committee in making a summary of the results of Government efforts to reduce railroad charges for transportation in this and other countries. This portion of the report is inadequately described in the summary which we published, but it states substantially that seven different methods have been tried and that they have failed or would be inapplicable to this country. The fact is that in a community like the United States or England, where competition is almost the sole regulator of all business, it is almost impossible to introduce successfully regulation by law, even where competition fails to regulate. The whole framework of society is opposed to Government regulation; Government is utterly unqualified in its composition, method and traditions for such an office, and its efforts in that direction almost always result in disaster—not merely failure to do what is aimed at, but positive injury to the business of the country. In those countries where Government has interfered effectively, and regulated traffic and the charges therefor successfully, it has been the protector of the railroad companies as well as their dictator. So in France, where the companies are held strictly to account, the roads have been protected against competition by forbidding the construction of lines which might take away part of their traffic: their monopoly has been made complete by the act of the Government, and the Government properly has required in return a power of supervision and regulation which would be entirely unjust where the railroads may have their profitableness destroyed at any time by competing lines chartered by the Government, as is the case in this country. The French railroads are very much more profitable to their proprietors than the English or American roads, and their prosperity has been to a very great degree due to that "paternal government" which has taken as much pains to secure and maintain their privileges as to limit them.

It is, of course, too early to speak of the outcome of this session of Congress, which may yet do something wonderful in the way of legislation. It is not probable, however, that it will pass any of the laws proposed, as, indeed, those



advising the expenditure of money are not recommended for immediate adoption. Indeed, the time for legislation is certainly not now, if ever. As we have said heretofore, Congress may do good work by investigation and by the legislation necessary to secure a wise, thorough and complete marshalling of the facts concerning railroads and transportation in this country; but it is as impossible that it should legislate wisely for regulation at this time as that it can legislate wisely on any subject without a knowledge of the facts on which the legislation should depend. Doubtless no legislation is better than unwise regulation; but the railroad companies as well as the community are interested in securing a final settlement and not a temporary abandonment of the prevailing agitation; and though circumstances may cause the excitement on the subject to disappear for a year or a series of years, it will almost surely reappear as eager and unreasonable as ever, unless the means are provided for setting forth the facts relating to the business of railroads fully and completely and intelligently for any period. With these at command and easily understood no unreasonable demands will be persisted in, in a country like this, where there is no disposition towards communism; and reasonable demands ought not to be resisted. For the sake of peace as well as justice what is wanted is more light and a general diffusion of it.

#### The Wisconsin Railroad Law.

This law is the subject of opinions given by two of the most eminent lawyers of the country, Hon. B. R. Curtis, formerly a Judge of the Supreme Court of the United States, and Hon. William M. Everts, the former at the application of the Chicago & Northwestern, the latter at that of the Milwaukee & St. Paul, for advice concerning their action under the law. As the penalties under this law are very heavy, sufficient to equal the whole value of the properties after violating it for a short period, the advice of counsel was no mere form, intended to give a show of excuse for a neglect of the law. It is a capital case, indeed. If the law is valid, and the companies persist in charging according to their old tariffs, nearly every shipment will be a violation of the law; and if the penalty is enforced for each case, the roads must be sold to pay the fines. Certainly in these circumstances no company would decide to disobey the law if it believed that it could possibly be valid. Such a course would be throwing away their property. So the Wisconsin companies, though they needed no evidence of the injustice of the law, as a simple calculation showed that they could not possibly earn the interest on their mortgage debt under it, and must inevitably become bankrupt should it be enforced, and though for this reason they must have been anxious to find the law without binding force, still did need to be very sure before undertaking to set the law at naught. If the property of the stock and bondholders is to be destroyed through the law, the company's officers must see to it that it be by the action of the State in enforcing the law and not by the action of themselves in disobeying it. It is for this reason, doubtless, that the managers of the two principal Wisconsin companies, not satisfied with the opinions and advice of their own eminent counsel, have consulted these lawyers of national, and indeed international reputation, who stand at the head of their profession, and whose opinions doubtless will carry as much weight as anything except a decision itself in the court of last resort. It was of the utmost importance that they should be well advised and that the action taken should bear the test of the highest courts.

The Wisconsin law was framed on the basis that, whatever may be the case in States where chartered rights are given irrevocably, the provision of the Wisconsin constitution reserving to the Legislature the right to repeal or alter charters would warrant any possible regulation of rates.

With regard to this Mr. Everts calls attention to the distinction between a franchise and property in a franchise, which is immaterial, and the material property created or acquired under a franchise. The corporation's property is as completely its own as if it were an individual, and the Legislature cannot deprive it of it or of any of the attributes which make it property—one of which is the power to use it to make an income—without just compensation; and if in any case the corporation could be deprived of its chartered rights—even of the right of existence—it still could not be deprived of the property, but must be permitted to dispose of it with the attributes which make it valuable before dissolution. Otherwise the contract of the original charter would be substantially in terms like these: If the corporation will construct, equip and operate certain railroads, the State will give it power to issue stock and bonds, to obtain the right of way and have a corporate existence, and to receive reasonable pay for services rendered—unless the Legislature shall decide that it shall perform such services at unreasonably low rates, or for nothing. That would be a contract in which the corporation would receive no valuable consideration in return for the millions of its investment.

Judge Curtis, in his opinion, adds an argument from the rights of the company's creditors. The State has authorized expressly the issue and sale of the railroad company's bonds, secured by its property and the right to use it profitably. Any law which prohibits the profitable use of the railroad property at the same time destroys utterly the security and the means of payment of the interest and principal of these bonds. Now, even if the State can lawfully change the terms of its contract with the corporation, it cannot impair the obligations of the company's legal contracts with third parties.

There seems to be in Wisconsin a quite general recognition of the unreasonableness of the law, but the claim is set up in some quarters that the corporations should obey the law until it is decided unconstitutional. Any Wisconsin farmer can better appreciate the situation and motives of the railroads by the rule, so often useful in morals, "Put yourself in his

place." I have bought a farm, borrowing half of the purchase money, and securing my notes by giving a mortgage on the farm. I paid forty dollars an acre for it, knowing that on an average I could raise on each acre at an expense of ten dollars produce worth fifteen dollars in the open market, which will leave me an average profit of five dollars an acre and enable me to meet the interest and principal when due. Now a law is passed which says that I shall sell the acre's produce which costs me ten dollars to raise for, say, not more than eleven dollars. Now shall I obey this law for a year, or two or three, until a court decides it unconstitutional? If I do, I abandon my property. My profit of one dollar an acre is not enough by half to meet the interest at 8 per cent. on the half of the cost of the land for which I owe, and the mortgage, himself wronged by the law, forecloses and takes possession of the property, while I am deprived utterly of all right and title to the property on which I had paid up twenty dollars an acre. The case is precisely similar to that of the railroad companies, except that the latter will in some cases have all instead of four-fifths of the income from their property taken from them if the law is executed. It is simply a matter of life and death with them. If they obey the law the stockholders must forfeit their property, which would thus be just as much confiscated to the use of the public as if the State had taken possession of the road and worked it with its own officers and collected its revenues into its own treasury. As has been said before, the railroads, in ignoring the law, incur the risk of ruin if it shall prove valid, and they have therefore the most powerful motive for making sure that their position is unassailable. The question of the equity is readily soluble by any one who has access to a railroad's accounts, and if there shall be prosecutions under the law we shall doubtless have proof of the exact effect of the law on receipts. Whatever might be the validity of a law which only prohibited unreasonably high profits, none can be justified which would make them unreasonably low.

#### Upper Mississippi Traffic.

The traffic which reaches the Upper Mississippi, especially the Minnesota wheat, which is the chief staple carried, is computed for from three separate directions and by a greater number of routes. To the east are the railroads of the Milwaukee & St. Paul, the Chicago & Northwestern and the Illinois Central, which receive wheat from the steamers and barges at six different points between St. Paul and Fulton and carry to Lake Michigan, either to Chicago or Milwaukee. To the north is the Lake Superior & Mississippi, receiving grain from the steamers at Stillwater and carrying it north 150 miles to Duluth, where it is almost as near to the lower lake ports as at Chicago or Milwaukee, though the vessel rates are higher, partly on account of the lack of return loads, and partly on account of the delays and expense on the Sault Ste. Marie. On the south is St. Louis and the Lower Mississippi, the latter scarcely a competitor for carrying to the seaboard, but the former the largest customer for manufacturing into flour in the United States, perhaps. It has not hitherto used the Minnesota spring wheat to a considerable extent in its mills. The chief competitors are the railroads to Lake Michigan and that to Lake Superior, the latter as yet taking but a small fraction of the whole. It has much the shortest haul, but it has to depend chiefly on its through traffic for support, having no considerable local traffic and no prospect of any, so that a rate per ton per mile which is profitable to the Lake Michigan roads may be ruinous to it. It has therefore usually made the same or nearly the same rate from river points to Duluth as the roads to Lake Michigan have made to Chicago and Milwaukee, and, by the way, has not with them earned enough to pay its interest charges. If the North Wisconsin shall complete its line to Lake Superior, as it has agreed to do, it will be another competitor, managed, however, by men who, through their ownerships of the West Wisconsin, are interested also in cultivating the traffic to Lake Michigan.

These Minnesota wheat shipments, a great amount of which can reach the Mississippi without railroad carriage, are already enormous and grow constantly greater, and the competition between the different routes may in time cause important changes in trade centers and the relative importance of lake ports. For instance, the railroads reaching the Mississippi could be made to carry from Illinois and Wisconsin to the Mississippi, instead of to Lake Michigan, and the cultivation of shipments by way of either Duluth or New Orleans has a tendency to bring about this result.

#### Aid for the Northern Pacific.

Senator Ramsey, of Minnesota, has introduced in Congress a bill to aid the construction of the Northern Pacific Railroad which, we must say, seems to us one of the most impudent propositions ever made in that honorable body. The gist of it is that the Government shall pay the whole cost of the railroad by furnishing the company with Government bonds at the rate of \$40,000 per mile, (worth in the market now about 15% per cent. premium,) and take in return the company's bonds at the rate of \$50,000 per mile, (quoted in the market at 25), but really issuing and becoming responsible for \$10,000 per mile more, which it is to hold and sell to pay interest when the company fails to pay it. The bill ought to receive the support of all the present Northern Pacific bondholders, including all the creditors of Jay Cooke & Co., who will receive a large part of their dues in the bonds which were the property of this firm when it failed, for they, too, can receive Government 5s, worth 115, at par for their Northern Pacifics, though with interest not guaranteed until July 1, 1878. In consideration of this guarantee of the principal and interest of about \$100,000,000 of gold bonds, the Northern Pacific will return its land grant, which sells very slowly.

Why the Government should turn the railroad over to the company after paying its whole cost and a margin for several

million dollars profit, does not appear. By this proposal it assumes all the risks and gets nothing for it but the excess in value of a 7.5 per cent. Northern Pacific bond over a Government 5 per cent., which we venture to say will be a minus quantity to the end of time. If the country needs the road badly, Congress would do better to let the contract for completing the road to the lowest bidder.

But the country does not need the road, nor does the Northern Pacific Company itself. We venture to say that the road as it stands, completed from Lake Superior to the Missouri, and from Columbia to Puget Sound, will return greater net profits than the whole road would if completed. All the large tracts of fertile land on its lines which are likely to attract settlers for a long time to come are on the completed sections of the road, and the through traffic would not be likely to pay working expenses for many years to come. The immediate completion of the road would be a good thing for the contractors, doubtless, and also for the company receiving \$100,000,000 for it, but not at all to the community—quite the contrary, indeed.

#### Record of New Railroad Construction.

This number of the RAILROAD GAZETTE has information of the laying of track on new railroads as follows:

**Kansas Midland.**—Track is laid from the western terminus at Topeka eastward 8 miles. **Utah Northern.**—This road (of 3-foot gauge) is extended from Hyde Park northward 16 miles to Franklin, Utah.

This is a total of 24 miles of new railroad, making 380 miles completed in the United States in 1874.

THE TEXAS & PACIFIC RAILWAY COMPANY proposes to settle with the California & Texas Construction Company, which had contracted to construct the whole railroad and take its pay in stock and bonds, to close the contract on the completion of the Transcontinental Division from Brookston eastward to Texarkana, and the main line from Dallas west to Fort Worth. The construction company will endeavor to collect subscriptions from its stockholders sufficient to complete this work and equip the lines. With so much of the road completed the company will have, we do not doubt, a property more profitable than the whole line would be. The system will then consist of the "Jefferson Division," extending a little east of north from Marshall through Jefferson to the Arkansas line at Texarkana, a distance of 69 miles, with two nearly parallel lines extending westward nearly at right angles with the termini of the Jefferson Division. The longest of these is the main line, which now extends 40 miles east of Marshall to the Red River at Shreveport, La., and 152 miles west to Dallas, and is to be extended 31 miles further west to Fort Worth; the other is the Transcontinental Division, now extending from Sherman (64 miles north of Dallas) eastward 56 miles to Brookston, and within 96 miles of Texarkana. Both of these lines pass for the most part through a fertile country, capable of profitable cultivation to a greater extent than almost any other part of the South, with timber at the eastern ends and prairie beyond. The Red River gives a steamboat connection with New Orleans and the sea-board from Shreveport and Jefferson, and the new Cairo & Fulton Railroad affords a short route to the North and East by way of Memphis, Cairo, St. Louis and Chicago from Texarkana. Doubtless in time the country for some distance west of Sherman and Fort Worth will afford a considerable traffic to support further extensions in that direction; but within a comparatively short distance an undesirable district is reached, which will probably never afford a traffic sufficient to support a railroad, unless aided by a large through traffic. But with the lines as they are, or rather as it is proposed to complete them, (for the Transcontinental Division is now isolated) a profitable traffic may reasonably be expected within a moderate period. The country is now very thinly settled, it is true, and it is not probable that it will ever afford a traffic equal in bulk to that from an equal territory in the Northwest; for Texas is never likely to produce corn and wheat and hogs in large quantities for export, but its chief traffic will be as it is in cattle and cotton. Both of these, however, the Texas & Pacific can expect to have a goodly share of, when the country on its lines, which is growing rapidly, is fairly settled and cultivated.

THE GREAT WESTERN RAILWAY OF CANADA, as its report shows, has suffered greatly from the depression which has affected the country generally of late. This railroad, though so well placed as a section of a leading highway between the East and the West, is still in some respects quite unfortunately situated. Having no very large traffic from the country on its line, at least not enough to support it, it depends more than almost any other line on its through traffic, which, however, it has scarcely any power over, either to attract to itself or to fix the rates at which it is carried. The rates on east-bound traffic are fixed by the lines west of it, and those on west-bound by the lines east of it, and pretty much all the Great Western can do is to carry what its connections bring it and accept the rates which they have determined for themselves. The road until recently has not been equal to its traffic, and when it had finally, at great expense, made the necessary improvements, the panic came, arresting a great deal of traffic and reducing the rates on the rest, so that, with the interest on the cost of the new works to pay, the dividend is reduced more than half. The road now lacks one material requisite to enable it to compete on even terms with its rivals, and that is a substitute—bridge or tunnel—for the ferry across Detroit. To put it on a sure basis, however, it needs an indissoluble union with its Western connections. The sundering of the relations between this road and Michigan Central, and the transfer of the latter's traffic to a rival, such as the Grand Trunk or the Canada Southern's Buffalo and Detroit line, would make the Great Western almost valueless to its proprietors; and as the Michigan Central talks of joining the Canada Southern in a tunnel at Amherstburg, in



view of the opposition to a bridge at Detroit, and as from Amherstburg the Canada Southern has considerably the shorter route and easier grades, and moreover is in condition to give the best of terms to any company which will give it a traffic, the Great Western proprietors have reason to be uneasy. The existing contract between their company and the Michigan Central has, however, several years yet to run, we believe, and the latter company seems disposed to cling to its old connection as far as possible.

**THE PROHIBITION OF DISCRIMINATIONS** made by the Minnesota railroad law in terms almost identical with those of the Illinois law has caused the managers of the St. Paul & Sioux City and the Sioux City & St. Paul roads to discontinue half-fare permits heretofore given to clergymen, sisters of charity, and objects of charity, and the granting of exceptionally low rates on firewood to those prairie stations where a not too dear fuel is a condition of settlement. A St. Paul paper, having intimated that this course was taken for the purpose of bringing the law into disfavor, the President and the General Manager sent it explanatory letters, showing that the law made no exception, but that the giving of the privileges would render the company liable to a fine of not less than a thousand dollars for the first, and from two to five thousand dollars for every subsequent case. The question was submitted to the new State Railroad Commissioners, who agreed unanimously that the cases mentioned came in the class prohibited by the new law. The managers of this road say that they intend to observe the law strictly if the rates which the Commissioners are to establish will enable the company to realize a reasonable revenue.

**BRITISH RAILROAD ACCIDENTS**, according to a statement recently made in the House of Lords by Lord Carlisle, caused the death of 48 and the wounding of 984 passengers within six months. This does not include railroad employees and persons on the track, but only passengers injured from causes beyond their own control. In 1872 the whole number of persons killed and injured on the railroads, including those suffering by their own negligence, was 1,145 killed and 3,098 wounded, and of this number only 24 killed and 1,247 wounded were passengers suffering from causes beyond their own control. The discussion in the House of Lords will probably result in the appointment of a Royal Commission to inquire into the "working and general management of railways, to report on the causes and the best means to be adopted for the prevention of accidents, and whether further legislation is required."

**STATE PURCHASE** of the Irish railroads was proposed under the Gladstone administration and rejected by it. On the accession of the conservative government the project was proposed in Parliament again, but this administration also opposes it, Sir M. Beach, the Secretary of State for Ireland, making a speech in which he condemned the principle.

**FORFEITURE OF CHARTER**, a telegram from Milwaukee dated the 13th says, will be applied for by the Attorney-General of Wisconsin on the 16th in *quo warranto* suits before the State Supreme Court against the Chicago & Northwestern and the Milwaukee & St. Paul companies, for violation of the new law.

#### The Master Mechanics' Convention.

We copy the Associated Press dispatches received before going to press.

The Association inaugurated its seventh annual session at Kingsbury Hall, in Chicago, May 12. The President, M. M. Britton, delivered an address, which treated of the present and future prosperity of the master mechanics upon American railroads, and predicted a future which would call them into power from the need of scientific men at the head of railroads. Papers were read on the following subjects: On the best form of safety valves; on the best method of relieving boilers of over pressure, and the best manner of testing pressure gauges. In the afternoon the establishment of a mechanical laboratory was considered.

About 100 members in all are in attendance at the convention from all parts of the United States and the Canadas. During their stay the members were tendered the courtesies of the city, which included a steamer trip on Wednesday, a ride around the city the day following, and a trip to Elgin on Friday, when they will visit the watch factory.

### General Railroad News.

#### ELECTIONS AND APPOINTMENTS.

At the annual meeting of the Lake Shore & Michigan Southern Railway Company in Cleveland, O., May 6, the following directors were elected: Cornelius Vanderbilt, William H. Vanderbilt, Augustus Schell, Eugene N. Robinson, Samuel F. Barger, New York; William Williams, Buffalo, N. Y.; William L. Scott, Charles M. Reed, John Tracy, Erie, Pa.; Henry B. Payne, Amasa Stone, Jr., Stillman Witt, Cleveland, O.; Albert Keep, Chicago. The new directors are Messrs. Robinson and Barger, who replace James H. Banker and Asariah Boddy. The board elected officers as follows: President, Cornelius Vanderbilt; First Vice-President, W. H. Vanderbilt; Second Vice-President, Augustus Schell; Treasurer, Edwin D. Worcester; Auditor, C. P. Leland; Secretary and Assistant Treasurer, George B. Ely; Managing Director, Amasa Stone, Jr. Mr. Worcester succeeds James H. Banker as Treasurer and W. H. Vanderbilt is a new officer, there having been but one Vice-President last year. Mr. Schell, who is now Second Vice-President. The Executive Committee is composed of C. Vanderbilt, W. H. Vanderbilt, Augustus Schell, Samuel F. Barger and Eugene N. Robinson, all of New York.

At the annual meeting of the Indiana & Illinois Central Railroad Company in Indianapolis, May 6, the following directors were chosen: T. H. Macquhrie, Tuscola, Ill.; E. M. Benson, Montezuma, Ind.; A. L. Roach, Indianapolis, Ind.; Henry C. Moore, St. Louis, Mo.; George M. Pullman, Chicago, Ill.; William G. Fargo, Buffalo, N. Y.; Henry Lewis, Philadelphia, Pa.; Benjamin E. Bates, Boston, Mass.; Charles A. Dana, Sidney Dillon, William H. Guion, Henry B. Hammond, Chauncey Vibbard, New York. Mr. Fargo is the only new director, replacing John H. Warren. The board re-elected Henry B. Hammond President and elected Chauncey Vibbard Vice-President and D. B. Burt Secretary and Treasurer.

At the annual meeting of the St. Paul & Sioux City Rail-

road Company in St. Paul, Minn., May 6, the following directors were chosen for the ensuing year: E. F. Drake, J. L. Merriam, J. C. Burbank, Horace Thompson, G. A. Hamilton, J. S. Prince, A. H. Wilder, C. H. Bigelow, H. H. Sibley and Russell Blakeley, St. Paul, Minn.; Samuel F. Hersey, Bangor, Me.; W. F. Davidson, St. Louis, Mo.; T. A. Harrison, H. G. Harrison, J. W. Pence, Minneapolis, Minn.

At the annual election of the New York Stock Exchange, May 11, the following officers were chosen: President, G. H. Brodhead; Chairman, M. A. Wheelock; Vice-Chairman, James Mitchell; Treasurer, I. C. Hays; Secretary, B. O. White; Governing Committee for four years, H. G. Chapman, A. B. Baylis, H. S. Wilson, J. B. Norris, S. T. Russell, A. M. Oahone, M. Nathan, James Weeks, W. Cooper, J. K. Warren; for two years, J. S. Brownell, W. Lummis; for one year, G. V. Bonver, S. Patchen; Trustees of Gratuity Fund, A. Campbell, W. A. Smith.

The directors of the Central Railroad Company of New Jersey met May 10 and re-elected the old officers, as follows: President, John Taylor Johnston; Secretary and Treasurer, Saml. Knox; Superintendent and Engineer, R. E. Ricker; Consulting Engineer, James Moore.

Mr. J. A. Roblin, formerly of the Truckee Division, has been appointed Chief Operator of the Sacramento Division of the Central Pacific.

At the annual meeting of the Central Railroad Company of New Jersey in Jersey City, May 8, the following directors were elected: John Taylor Johnston, John C. Green, Adam Norris, James Boorman Johnston, New York; Frederick T. Frellinghuysen, Newark, N. J.; John Kean, Benjamin Williamson, Elizabeth, N. J.; Henry D. Maxwell, Easton, Pa.; John Leisenring, Manahunk, Pa. Mr. Leisenring, who is a large coal operator, succeeds Sidney Dillon and is the only new director.

At the annual meeting of the Kansas Pacific Railway Company in Topeka, Kan., May 7, the following directors were elected: Robert E. Carr, Adolphus Meier, Carlos S. Greeley, B. W. Lewis, Jr., G. M. Edgell, John D. Perry, Theodore G. Meier, Robert Barth, St. Louis; Thomas A. Scott, Matthew Baird, Philadelphia; L. H. Meyer, New York. The new directors are Messrs. T. G. Meier, Barth and L. H. Meyer, who replace F. M. Meister, Edwin Harrison and John McManus. The board elected Robert E. Carr President.

The Maryland Board of Public Works has chosen the following State directors in the Baltimore & Ohio Railroad Company: John Carroll Walsh, Isaac M. Denison, John R. Blake, and George Colton, all of Baltimore.

The Maryland Board of Public Works met in Annapolis, May 3, and elected the following State directors of railroad companies: Maryland & Delaware, Philip F. Thomas, Edward Lloyd and William C. Satterfield; Eastern Shore, William L. Parsons, Dr. William H. Gale and William H. Roach; Wisconsin & Wisconsin, Humphrey Humphrey, Col. Levin L. Derickson and William Showell; Kent County, Abel J. Reese, William S. Walker and Robert Nicholson; of Kent County, Annapolis & Elkridge, Augustus Cassaway, Dr. H. M. Pinkard and Henry Aisquith; of Anne Arundel County, Philadelphia & Baltimore Central, John Keareny, of Cecil County, Queen Anne's & Kent, William M. McKenny and John R. Emory, of Queen Anne's County, Worcester Railroad Company, Dr. John T. Hammond and Lytleton R. Funnell, of Worcester County, Dorchester & Delaware, Hon. James A. Stewart and Edward Goslin, of Dorchester County, Worcester & Somerset, John P. Hargis, of Worcester County.

At the annual meeting of the stockholders of the Illinois & St. Louis Bridge Company in St. Louis, May 6, the following were elected directors: Gerard B. Allen, Hudson E. Bridge, James H. Britton, John R. Lionberger, Carlos S. Greeley, John Jackson, Julius B. Walsh, Lewis B. Parsons, William Tausig, E. W. Woodward, James B. Eads, George Knapp, Robert Lennox Kennedy. At a meeting of the directors held subsequently, the following officers were elected: President, Gerard B. Allen; Vice-President, Robert Lennox Kennedy; Treasurer, James H. Britton; Chief Engineer, James B. Eads; Secretary and Auditor, George O. Fabian.

At the annual meeting of the Manhattan & Northwestern Railroad Company in Manhattan, Kan., recently, the following directors were chosen: N. A. Adams, E. B. Purcell, L. R. Elliott, Albert Griffin, Manhattan, Kan.; C. E. Olmstead, Blue Rapids, Kan.; Thomas A. Osborn, Topeka, Kan.; Thomas Doane, Boston, Mass. The board elected L. R. Elliott, President; Thomas A. Osborn, Vice-President; N. A. Adams, Secretary; E. B. Purcell, Treasurer.

At the annual meeting of the Hamilton and Northwestern Railway Company in Hamilton, Ont., May 5, the following directors were chosen: John Stuart, Anthony Copp, Jas. Turner, P. W. Dayfoot, John Field, Thomas Saunders, Matthew Leggett and William Hendrie. At a subsequent meeting of the directors, Mr. John Stuart, M. P., was elected President and Mr. Anthony Copp Vice-President.

At the annual meeting of the Pithole Valley Railroad Company in Meadville, Pa., recently, J. H. Devereux, A. H. Steele, R. E. O'Brien, J. T. Wann, Thomas Warnock, J. H. Dynes, and John M. Osborn were chosen directors. The board elected J. H. Devereux, President; A. H. Steele, Vice-President; J. T. Blair, Secretary; J. T. Odell, Superintendent, and F. E. Rittman, Treasurer.

At the annual meeting of the Pacific & Atlantic Telegraph Company in Pittsburgh, May 5, William Orton, President of the Western Union Company, was chosen President with the following directors: Wm. G. Johnston, Pittsburgh; F. O. Heisel, D. H. Bates, Philadelphia; Geo. H. Mumford, Norman Green, R. H. Rochester, New York.

Mr. Thomas G. Gorman, formerly Master Mechanic of the Toledo, Wabash & Western Railway at Springfield, Ill., has been appointed Master Mechanic at Denison, Tex., on the Missouri, Kansas & Texas Railway.

At the annual meeting of the Missouri Railroad Construction Company at Canton, Mo., recently, the following directors were elected: A. B. Stone, Cleveland, O.; W. H. Harris, Decatur, Ill.; E. Pratt Buell, Warsaw, Ill.; L. M. Morse, Hannibal, Mo.; John O. Roberts, Clarksville, Mo. The following officers were elected by the board: President, A. B. Stone; Vice-President, J. A. Roberts; Secretary, N. Rollins; Treasurer, L. W. Moore, New York.

The executive and accounting officers of the Lake Superior & Mississippi Railroad under the administration of the company, which has resumed possession of its road, are as follows: Superintendent, George H. Smith; Superintendent of Machinery, H. A. Towne; Superintendent of Bridges and Buildings, S. J. Wallace; Treasurer, T. M. Davis; Auditor and General Ticket Agent, E. D. Haley. Mr. J. P. Halsey, the President, will perform the duties of Purchasing Agent. Mr. H. A. Towne still retains his position as Superintendent of Machinery of the Northern Pacific. The offices are at St. Paul, Minn.

Mr. William K. Ackerman has been appointed one of the trustees to sell and convey the lands of the Illinois Central Railroad Company, in place of S. D. Lockwood, deceased. The appointment is made under the law making the original grant to the company.

At the annual meeting of the St. Louis, Jerseyville & Springfield Railroad Company in Jerseyville, Ill., May 6, Robert H. Parks, of St. Charles, Mo., Col. William H. Fulkerson and C. M. Hamilton, of Jerseyville, Ill., were elected directors for four years; Hon. Hugh N. Cross, Judge Robert A. King

and Hon. William H. Allen were chosen directors for five years. Judge George E. Warren was elected director to fill the vacancy occasioned by the death of the late Milton D. Robbins. The following officers were elected for the ensuing year: Hon. Hugh N. Cross, President; Hon. R. H. Parks, Vice-President; Morris R. Locke, Secretary and Treasurer.

The new St. Louis, Iron Mountain & Southern Railroad Company, formed by the consolidation of the St. Louis & Iron Mountain, Cairo & Fulton, Cairo, Arkansas & Texas and Arkansas Branch companies, has been organized by the election of the following directors: Thomas Allen, Gerard B. Allen, S. D. Barlow, S. H. Laffin, Samuel Copp, W. R. Allen, St. Louis; Wm. H. Smith, H. G. Marquand, W. J. Blodgett, Geo. Cabot Ward, John Bigelow, New York; N. M. Rose, J. M. Loughborough, Little Rock, Ark. The board chose the following officers: Thomas Allen, President; H. G. Marquand, New York, Vice-President; D. W. McWilliams, New York, Treasurer; S. D. Barlow, Secretary; Thomas McKissock, General Superintendent; James H. Morley, Chief Engineer; James M. Loughborough, Land Commissioner.

At the annual meeting of the St. Louis Tunnel Railroad Company in St. Louis, May 8, Gerard B. Allen, Carlos S. Greeley, J. H. Britton, John R. Lionberger and Wm. Tausig were elected directors. The board elected officers as follows: Wm. Tausig, President; Carlos S. Greeley, Vice-President; J. H. Britton, Treasurer; James B. Eads, Chief Engineer; Geo. C. Fabian, Secretary and Auditor.

Mr. H. A. Tenney, formerly of the St. Paul Pioneer and of the late Chicago Republican has been appointed Secretary of the Wisconsin Railroad Commission.

Judge Samuel Lockwood, one of the land trustees of the Illinois Central Railroad, died recently at his residence at Batavia, Ill., at the age of 85. The company has appointed as his successor their Treasurer, Mr. William K. Ackerman.

Colonel Lyman Bridges, of Chicago, an eminent building contractor, has been appointed by the Governor of Illinois, Commissioner of Water Routes between Illinois and the seaboard.

At a meeting of the stockholders of the Federal Creek Valley Railroad Company, May 4, D. B. Stewart, J. M. Rusk, P. B. Vore, Arthur Pond, John F. Welch, S. W. Kilvert, Jr., J. C. Douglas, L. L. Joy, George M. Penn, L. F. Parsons, David Moody, L. M. Hale and S. J. Wells were chosen directors. The board elected D. B. Stewart, President; S. N. Hobson, Secretary, and Charles Morrow, Treasurer.

At the annual meeting of the Delaware and Hudson Canal Company in New York, May 12, the old board of managers was re-elected as follows: Charles N. Talbot, Abiel A. Low, Robert Lennox Kennedy, James L. Halsted, Legrand B. Cannon, James F. Taylor, John Jacob Astor, Robert M. Olyphant, George Cabot Ward, J. Pierpont Morgan, W. J. Hoppin, New York city; Thomas Cornell, Kingston, N. Y.; Thomas Dickson, Scranton, Pa. The board re-elected Thomas Dickson, President; James C. Hart, Treasurer; George L. Haight, Secretary.

At the annual meeting of the New York & New England Railroad Company in Boston, May 12, the following directors were chosen: James C. Ayer, Wm. T. Hart, Edward W. Kingsley, George M. Rice, James Sturgis, Boston; James Y. Smith, Royal C. Taft, Providence, R. I.; John F. Slater, Norwich, Conn.; Frederick J. Kingsbury, Waterbury, Conn.; George W. Baldwin, Legrand B. Cannon, William Butler Duncan, Gustavus T. Fox, R. Suydam Grant, F. W. Rhinelander, New York. The new directors are Messrs. Ayer, Rice, Sturgis, Baldwin, Cannon, Fox, Grant and Rhinelander, who replace John Foster, T. K. Lathrop, Francis Dane, P. H. Watson, S. L. M. Barlow, Robert M. Olyphant, Marshall Jewell and W. J. Hamersley.

At the annual meeting of the Houston & Texas Central Railroad Company in Houston, Tex., May 6, the following directors were elected: William M. Rice, F. A. Rice, William J. Hutchins, Cornelius Ennis, A. Groesbeck, William B. Baker, A. A. Van Alstyne, A. J. Burke, Houston, Tex.; William E. Dodge, Moses Taylor, John J. Cisco, New York. The new directors are Messrs. Cisco, Burke and Van Alstyne, who succeed T. M. Shirley, T. W. Peirce and Paul Bremond. Messrs. Hutchins, Ennis, W. M. Rice, Taylor and Dodge are, or very lately were, directors of the Houston & Great Northern Company.

At the annual meeting of the Southern Minnesota Railroad Company in Wells, Minn., April 28, the following directors were chosen: J. W. Polleys, Wells, Minn.; T. B. Stoddard, C. W. Thompson, H. M. Wells, Jr., La Crosse, Wis.; G. W. De Forest, P. M. Meyers, Alton P. Man, A. L. Dumont, New York; A. B. Moore, Hartford, Conn.

The Baltimore *Gazette* of May 12 says: "An official circular from the Erie Railway office announces that the Third and Fourth Vice-Presidents, Messrs. J. C. Clarke and Henry Tyson, have resigned their respective positions. Mr. James C. Clarke has been appointed General Manager of the road."

Mr. E. G. Bondurant, formerly on the Jeffersonville, Madison & Indianapolis road, has been appointed Master of Transportation on the Ohio & Mississippi.

At the adjourned annual meeting of the Seaboard & Roanoke Railroad Company in Portsmouth, Va., May 6, the old board of directors was re-elected as follows: Moncre Robinson, Richard Dickson, Thomas Kelso, David A. Barnes, W. P. Savage, Nulbro Frazier. John M. Robinson was re-elected President; John T. Hill, Treasurer; Jos. A. Walton, Auditor.

#### PERSONAL.

Mr. H. D. Newcomb, President of the Louisville & Nashville Railroad Company was seized at his residence in Louisville, Ky., May 6, with a severe attack of paralysis.

Mr. C. Morse has resigned his position as Superintendent of the Syracuse Northern Railroad.

#### TRAFFIC AND EARNINGS.

The anthracite coal tonnage of the lines given for the four months ending May 2, was as follows:

	1874.	1873.	Inc. or Dec.	Per cent.
Delaware, Lack. & Western.	190,316	218,402	Dec. 28,086	13%
Norfolk & Western.	629,108	790,268	Dec. 161,160	25%
Total.	819,424	1,008,670	Dec. 189,246	23%
Central of New Jersey:				
Lahigh Division.	601,694	718,980	Dec. 117,286	19%
Del. & Hudson Canal Co.	770,008	900,272	Dec. 130,264	17%
Pa. Coal Co., by Erie Ry.	364,473	368,304	Inc. 3,831	1%
Northern Central.	143,448	126,916	Dec. 16,532	11%
Shenandoah Div.	89,640	108,559	Dec. 18,919	21%
Summit Branch.				
Totals.	2,701,711	3,160,731	Dec. 459,020	17%

The tonnage of Cumberland coal over the lines given for the four months ending May 2, was as follows:

	1874.	1873.	Inc. or Dec.	Per cent.
Baltimore & Ohio.	411,061	417,763	Dec. 6,702	1%
Chesapeake & Ohio Canal.	66,640	74,892	Dec. 8,252	12%
Pennsylvania, Bedford Div.	38,941	33,584	Inc. 5,357	16%
Totals.	516,642	526,239	Dec. 9,597	1%



The bituminous coal tonnage of the lines given for the four months ending May 2, was as follows:

	1874.	1873.	Inc. or Dec.	Per Cent.
Huntington and Broad Top. 123,000	123,000	169,171	Dec. 46,171	24%
Clearfield coal, over Tyrone Div.				
Pennsylvania Railroad. 199,946	199,946	145,092	Inc. 54,854	37%
Pa. & N. Y. R. R. (5 months) 85,811	85,811	112,825	Dec. 27,014	24%
Totals. 408,817	408,817	427,088	Dec. 18,271	2%

The earnings of the Central Pacific Railroad for the month of April were: 1874, \$1,132,000; 1873, \$1,129,469; 1872, \$949,598; increase, 1874 over 1873, \$2,531, or 0% per cent.; increase, 1874 over 1872, \$182,402, or 19% per cent. For the four months ending April 30 the report is: 1874, \$3,667,026; 1873, \$3,550,530; 1872, \$2,989,421; increase, 1874 over 1873, \$1,116,496, or 0% per cent.; increase, 1874 over 1872, \$677,605, or 22% per cent.

The earnings of the Seaboard & Roanoke Railroad for the year ending February 28 were:

Passengers. 495,496	96
Freight. 499,305	07
All other sources. 55,820	14
Total earnings (\$6.133 per mile). 1,050,622	17
Expenses (65.93 per cent.). 692,663	65

Net earnings (\$2.769 per mile) \$357,959 52

The shipments of through freight eastward over the Central Pacific Railroad during March were: from San Francisco, 3,078 tons; interior points, 354 tons; total, 3,432 tons, or 343 car-loads. The principal items were: barley, 1,500 tons; wool, 321 tons; tea, 208 tons; wine, 185 tons.

The earnings and expenses of the Union Pacific Railroad for March were:

	1874.	1873.	Increase.	Decrease.	Per Cent.
Earnings. 687,026	15	570,256	53		\$21,230 38
Expenses. 339,080	50	330,800	10		2%

Net earnings. \$347,945 65 \$239,456 43 \$20,510 78 8%

For the three months ending March 31 the report is as follows:

	1874.	1873.	Increase.	Decrease.	Per Cent.
Earnings. 1,915,731	64	1,724,014	94		\$191,716 70 11%
Expenses. 1,023,995	31	971,395	72		52,599 59 5%

Net earnings. \$891,736 33 \$752,619 22 \$139,117 11 18%

The expenses were 53.45 per cent. in 1874 and 56.34 per cent. in 1873. The earnings were \$1,856 per mile in 1874 and \$1,671 in 1873.

The anthracite coal tonnage of the lines given (whose year begins December 1) for the five months ending May 2 was as follows:

	1874.	1873.	Inc. or Dec.	P. Cent.
Philadelphia & Reading. 2,056,834	2,056,834	2,077,598	Dec. 20,764	1
Schenectady Canal. 160,461	160,461	93,170	Inc. 67,291	72%
Litchfield Valley. 1,618,983	1,618,983	1,456,201	Inc. 162,782	4%
Pennsylvania and N. York. 274,890	274,890	240,036	Inc. 34,854	14%
Totals. 4,011,168	4,011,168	3,867,005	Inc. 144,163	3%

The earnings of the Chicago, Milwaukee & St. Paul Railroad for the first week in May were: 1874, \$200,000; 1873, \$134,103; increase, \$65,897, or 49% per cent.

The earnings of the Great Western Railway of Canada for the week ending April 17 were: 1874, \$24,836; 1873, \$24,129; increase, \$707, or 2% per cent.

The coal traffic of the Pennsylvania Railroad for the fourth week (nine days) of April was:

Anthracite (tons of 2,000 lbs.). 7,972	
Bituminous. 72,984	
Coke. 15,975	
Total. 90,931	
Danville, Hanleton & Wilkesbarre (anthracite). 1,562	
Total. 92,493	

The earnings of the Great Western Railway of Canada for the week ending April 24 were: 1874, \$25,163; 1873, \$27,236; decrease \$2,073, or 7% per cent.

The earnings of the Grand Trunk Railway for the week ending April 18 were: 1874, \$43,500; 1873, \$41,900; increase \$1,600, or 3% per cent. Week ending April 25: 1874, \$41,800; 1873, \$38,500; increase \$3,300, or 8% per cent.

The following companies have reported earnings for April:

	1874.	1873.	Inc.	Dec.	P. Cent.
Atlantic & G. Western. 424,104	424,104	434,845			\$10,741 2%
Burlington, Cedar Rapids & Minn. 84,092	84,092	77,387	6,705		9%
Central Pacific. 1,132,000	1,132,000	1,129,469	2,531		0%
Chicago, Milwaukee & St. Paul. 742,281	742,281	574,258	167,923		29%
Chicago & Northwestern. 1,074,730	1,074,730	1,094,028	40,708		4
Cleveland, Col., Cin. & Ind. 342,248	342,248	405,006		62,758	18%
Illinois Central. 580,921	580,921	559,912	27,009		4%
Indianapolis, Bloom. & W. Va. 150,036	150,036	124,045	25,991		21
Missouri, Kan. & Texas. 214,000	214,000	238,871		24,871	12%
Ohio & Mississippi. 299,805	299,805	342,682		42,877	14%
St. Louis, Alton & Terre Haute. 100,283	100,283	113,631		13,348	11%
St. Louis, Kansas City & Northern. 195,846	195,846	231,896		36,050	18%
Toledo, Peoria & Warsaw. 94,569	94,569	84,260	10,309		12%
Wabash & West. 447,855	447,855	446,527	1,328		0%
West Wisconsin. 79,117	79,117				

## CHICAGO RAILROAD NEWS.

## Illinois Central.

The Land Department reports for April sales of 2,471.03 acres construction fund lands for \$16,737.40. The cash collections for the month were \$31,318.06.

The Traffic Department reports earnings for April as follows:

	In Illinois.	In Iowa.	Total.
Freight. 229,210	00	72,610	00
Passengers. 95,071	75	37,384	00
Mails. 6,375	00	3,099	24
Other sources. 70,625	00	2,585	75
Total, April 1874. 465,261	75	115,639	00
Actual earnings, April, 1873. 437,005	80	116,906	41

This is an increase of 6% per cent. in the Illinois earnings; a decrease of 1% per cent. in the Iowa earnings; and an increase of 4% in the total earnings.

The Railroad Commissioners have employed Messrs. Linegar and Lamsden, attorneys of Cairo, to bring suit against this company for infringement of the railroad law.

## Freight Rates Eastward.

Last week the trunk lines agreed upon a revision of through rates from Chicago to the seaboard, as follows:

	Fourth class.	Flour.
Chicago to Boston and common points. 80 50	\$1 00	
New York and common points. 0 45	0 00	
Albany. 0 40	0 80	
Philadelphia and Harrisburg. 0 40	0 80	
Baltimore and Washington. 0 40	0 80	

These figures are about 5 cents per 100 lbs. higher than the

old rates. Butter and eggs have been classified as second-class freight, which is equivalent to an advance of 10 cents. The rates from points southwest of Chicago are advanced on the basis of the above tariff. From Peoria to Eastern points the rates will be 5 cents higher than from Chicago; from Burlington and Keokuk 10 cents higher, and from Quincy and St. Louis 15 cents higher.

Some surprise has been expressed that the railroad rates should be raised just at the opening of navigation, when usually they are lowered; but it must be remembered that the winter rates were broken and lower than the usual summer rates, and that when the trunk lines finally came to an agreement, a few weeks ago, they did not at once resume the rate usual at the season, but the low summer rate. The advance only brings up the tariff to the rate usual at this season.

## Civil Engineers' Club of the Northwest.

At the regular monthly meeting on the 11th, Mr. L. P. Morehouse, Assistant Engineer of the Illinois Central Railroad and Secretary of the Club, read a paper "Concerning the Cost of Transportation on Railroads."

## OLD AND NEW ROADS.

## Chicago, Milwaukee &amp; St. Paul.

This company has issued a "distance tariff" which went into effect about the first of May. It gives rates on the four classes per 100 lbs., and eight car-load rates, for distances from 5 to 200 miles, increasing by five miles to 100 miles and thence by 10 miles. On first-class beginning with ten cents per hundred for five miles, and 12 cents for 10 miles, it increases by three cents for every five miles up to 70 miles, then by two cents up to 100 miles, and then by two cents for ten miles up to 200 miles, for which the rate is 80 cents. On fourth-class the rates are less regular, apparently to avoid fractions of cents, the increase being one cent for five miles from five to 15, the initial rate being 7 cents, two cents from 15 to 20, one cent from 20 to 30, three cents for the next five miles, one cent from 35 to 40, two cents from 40 to 70, one cent from 70 to 160, and 1/2 cent, or one cent for 10 miles, thence to 200, for which the rate is 50 cents. For grain in bulk in car-loads, which is by far the most important rate, the rate begins with six cents per hundred for five miles, increases by one cent for five miles up to 100 miles, and thence by one cent for ten miles up to 200, for which the rate is 34 cents—equivalent to 20 cents a bushel for wheat from LaCrosse to Milwaukee, or 34 cents per ton per mile. The lowest rate is for lumber, which, beginning with 77 per car-load of 10 tons for five miles, increases by one dollar for every five miles up to 100 miles, and thence by one dollar for every 10 miles up to 200 miles, making \$36 per car-load for the latter distance, which is 1.8 cents per ton per mile. This, however, does not supersede the ordinary tariff schedules, we believe, but is only for traffic between local stations, terminal and through traffic having their special rates, as heretofore.

The Milwaukee & St. Paul Company appears to have now fully adopted the above name, as it appears at the head of all notices and official documents.

Trains are now passing regularly over the pontoon bridge across the Mississippi at Prairie du Chien, which works very well.

## California &amp; Texas Construction Company.

A special meeting of the stockholders was held in Philadelphia, May 6, to consider a plan for the reorganization of the company. The meeting was private, but it is understood that it was resolved to raise the means necessary to complete the main line of the Texas & Pacific from Dallas to Fort Worth and the Transcontinental Division from Brookston to Texarkana. It was also resolved to appoint a committee to receive the subscriptions as they are paid in and apply them to the work in hand. This committee consists of George B. Robbins, of Philadelphia, Henry G. Stebbins, of New York, and Silas F. Miller, of Louisville, Ky.

## Meetings.

The following companies will hold their annual meetings at the times and places given:

Illinois Central in Chicago, May 27, at 11 a. m. Transfer books are closed from May 13 to June 2.

New York Central & Hudson River in Albany, N. Y., June 3, at 12 noon.

Chicago & Northwestern in Chicago, June 4. Transfer books are closed from April 29 to June 6.

Chicago, Milwaukee & St. Paul in Milwaukee, Wis., June 13, at 12 noon. Transfer books will be closed from May 21 to June 29.

The stockholders and voting bondholders of the new Keokuk & Des Moines Company will meet to elect nine directors at Keokuk, June 4.

## Lake Shore &amp; Michigan Southern.

Commenting on the annual report, the New York World says:

"Between two of the closing paragraphs, after the style had unconsciously changed from the 'we' of President and Directors to the 'I' of Cornelius Vanderbilt, there lies a whole volume of stormy history, concerned with the present solvency of many more people than have ever known the fact. In few words we will supply what the good taste or the mature judgment of Mr. Vanderbilt has omitted. Between the panic of September and the quieter days of January, 1874, the Lake Shore Company was lifted over all its embarrassments, protected in all its obligations, by the strength of one man, carried at eighty years of age into taking the management of a road largely involved by extravagant outlays for construction. At one time \$6,000,000 of Mr. Vanderbilt's own private fortune in Harlem and New York Central stock was pledged for debts of the Lake Shore road. True, the road was one which could and did repay him; but his wealth was the only thing which enabled him to save it from going to protest. What would have become temporarily of railroad securities had Mr. Vanderbilt's means been unequal to this task it is hard to say. The Lake Shore road would undoubtedly have passed into other hands, would have changed owners at a contemptible price, and would have produced a panic such as experienced men can remember, when standard investments sold at 50 cents on the dollar. The Lake Shore road is now on its feet again and likely to stay there. The main force of money is no longer needed; management and direction will now suffice, and Mr. Vanderbilt and Mr. Stone are quite equal to their tasks. But the impression left most clearly on the mind is the rescue of the property from impending bankruptcy."

## Chicago &amp; Northern Pacific Air Line.

This company has formally notified the Governor of Wisconsin of its acceptance of its share of the St. Croix Land Grant, and has given a bond of \$200,000 with sureties as security for its fulfillment of the conditions.

## The Cawood Swage Block.

In the United States Circuit Court in Chicago, May 9, the Master in Chancery presented an amended report as to the damages due plaintiff for infringement of patent by the use of this swage block for repairing rails. A report was presented last October, which was referred back to the Master in order that additional testimony might be taken. The amended report finds that the average saving per foot repaired by use of the swage block is 48 cents, and awards plaintiff the following sums from the companies named: Illinois Central, \$144,051.48; Chicago & Alton, \$53,902.32; Lake Shore & Michigan

Southern, \$412,331.04; Pittsburgh, Fort Wayne & Chicago, \$59,908.80; Chicago, Burlington & Quincy, \$61,401.92; total, \$731,701.56. This is a little more than half the sum awarded by the former report. The report is now open to the filing of exceptions by the companies.

## St. Paul &amp; Pacific.

Edmund Rice and Horace Thompson, of St. Paul, and Samuel J. Tilden, of New York, trustees for the bondholders, have filed complaints in the Court of Common Pleas at St. Paul, Minn., asking for the foreclosure of the mortgages on the St. Paul & Pacific Railroad and the St. Paul & Pacific First Division, and the appointment of a receiver. The immediate ground of the complaint is the non-payment of the coupons due in June and December, 1873. It is alleged in the complaint that both companies are hopelessly insolvent, and that the outstanding mortgages are in excess of the value of the property, besides which there is a large floating debt. The Court granted a temporary injunction restraining the present managers from disposing of any of the property and ordering them to appear May 30 and show cause why a receiver should not be appointed.

This application applies to the completed lines, from St. Paul to Breckinridge, 210 miles, and from St. Paul to Sauk Rapids, 80 miles. The uncompleted portions of the St. Vincent Extension and Brainerd Branch are already in the hands of Mr. J. P. Farley as Receiver.

The Department of the Interior has certified to the Governor of Minnesota 725,175 acres of land granted in aid of the St. Vincent Extension. About 175,000 acres more are due. These are the lands which the last Legislature provided should not be turned over to the company until the claims against it had been satisfied.

## Lake Ontario Shore.

An agreement or lease has been made by representatives of this company and the Rome, Watertown & Ogdensburg, by which the latter company will hereafter operate the Lake Ontario Shore road, with which its lines connect at Oswego, and will have full management of all the affairs of the company. It is said that this arrangement will secure the completion of the road westward to the Niagara River. The agreement will probably have to be passed upon by the stockholders of both companies. The Lake Ontario Shore road is in operation for 52 miles, from Oswego, N. Y., to Ontario, and considerable work has been done west of the latter point.

## Old Colony.

At a meeting of the stockholders in Boston, May 12, votes were offered authorizing the directors to expend \$750,000 in the purchase of the Narragansett Steamship Company's property and to invest \$40,000 in the stock of the Narragansett Steamboat line. The polls will remain open for a week.

## Yardleyville &amp; Bound Brook.

Articles of association have been filed with the Secretary of State of New Jersey by a company which purposes building a railroad from the Delaware at Yardleyville, near Trenton, to Bound Brook. The capital stock is to be \$1,000,000. The line is the same as that of the National road.

## Pennsylvania—New York Division.

The Jersey City Board of Public Works has appointed a committee to confer with the officers of the Pennsylvania Railroad and devise a plan for raising the tracks of the main line through the city like those of the Harborside Cove Branch. It is not likely that anything will be accomplished, as any such arrangement would involve a very large expenditure, which neither the city nor the company would be willing to meet.

## St. Louis Union Depot.

A company has been organized in St. Louis to build a union depot for all the roads entering that city. The capital stock is to be \$1,000,000.

## Cairo &amp; Vincennes.

Mr. John Crerar, of Chicago, who was appointed one of the receivers, has declined to act. Mr. Morrell, the other receiver, has accepted and has filed the required bonds.

## Railroad Manufacturers.

The Columbus Car Works, at Columbus, O., now employ 300 men and are turning out 11 cars a day, on a large order for the Baltimore & Ohio.

A shop for building refrigerator cars is to be established at Rochelle, Bergen County, N. J., on the line of the New Jersey Midland road.

The first rail ever rolled in Kansas was made at the Topeka Iron & Steel Company's Mill at Topeka, April 24. The company has contracts enough to keep the mill running a year.

The Wyandotte (Mich.) Rolling Mills have resumed work on a contract for 600 tons of rails, 30 lbs. to the yard, for the Denver & Rio Grande Railroad. The order is to be increased to 6,000 tons, if the first lot prove satisfactory.

Ryland's Iron Trade Circular of May 2 says: "The output of steel rails is enormous, and the Bessemer trade is the most prosperous of Sheffield industries. Every 'converter' is worked to its full capacity."

## Atlantic &amp; Great Western.

Several meetings have been held by the representatives of this company and the Erie to arrange terms of lease. It is understood that the Atlantic & Great Western asked for 35 per cent. of the gross earnings, but that the Erie offered 28 per cent. the first year, 29 per cent. the second and 30 per cent. thereafter. It is stated that 30 per cent. of gross earnings, without any guarantee of interest or of any specific amount, was finally agreed upon as the rental to be paid by the Erie, and that only the particulars of the lease remain to be arranged.

## Dividends.

Dividends have been declared by the following companies: Catawissa, 3% per cent., semi-annual on the preferred stock and 22% cents per share on the new preferred stock, both payable May 8.

## Northern Pacific.

A meeting of the bondholders is called, to be held at No. 23 Fifth Avenue, New York, June 9, at 11 a. m., to choose a trustee under the mortgage to fill a vacancy.

## Canada Pacific.

The Canadian Government has presented to Parliament its plan for the construction of the Pacific road. The road is to be divided into four sections; the first from Lake Nipissing to Lake Superior, the second to extend to Red River, the third through Fort Edwain and the base of the Rocky Mountains, the fourth to some point on the Pacific Ocean; the branches to be constructed from the eastern terminus to a point on Georgian Bay and from near Fort Garry, Manitoba, to the boundary of the province near Pembina, a line of telegraph to be constructed in advance of the railway and along the whole line as soon as a survey is completed; the gauge of the railroad to be 4 feet 8 1/2 inches; the Government in council to divide the road into sections and sub-sections for construction. The contractors must show that they possess at least \$40,000 per mile for each mile contracted for, and deposit 25 per cent. as security; an extent of land not exceeding 20,000 acres per mile to be appropriated for construction in alternate sections of twenty square miles each, having a frontage of railway of not more than six miles on said line, two-thirds of which is to be



sold from time to time by the Government, the proceeds to be paid half-yearly to the contractors, and the remaining one-third to be conveyed to the contractors; each section to be the property of the contractors, subject to such regulations as the Government may make. In every contract the Government reserves the right to purchase a section or sub-section on the payment not exceeding the actual cost, and 10 per cent. in addition, all subsidies to be computed as a portion of the amount so paid, no contract binding until approved by resolution of the Houses. The branch line to Georgian Bay is to be constructed by private enterprise, under the conditions applied to the main line. The Government in council may grant a bonus and subsidies for branch lines connecting the eastern terminus of the railway with existing or proposed lines of railway, the bonuses not to exceed \$10,000 per mile. The Government in council may also make arrangements for the leasing of such branches for terms not exceeding ten years. The Pembina branch may be built either by private enterprise or as a public work.

#### New Orleans, Jackson & Great Northern.

The bonds issued by the city of New Orleans in payment of its original subscription to the stock of this company were recently protested for non-payment. The company holds that it merely transferred these securities and did not in any way become liable for them. The Legislature recently passed an act authorizing the city to exchange these bonds for new bonds having 20 years to run, or to fund them in the new 7 per cent. gold city bonds. The holders refused both of these offers.

#### North Wisconsin.

This company has filed the bond required as security for its fulfillment of the conditions upon which it is to receive part of the St. Croix land grant. The bond is for \$600,000, and has 19 sureties on it.

#### Corpus Christi & Rio Grande.

The engineers have completed the preliminary survey from Corpus Christi, Tex., to the Rio Grande at Laredo, a distance of 135 miles, and are now engaged in preparing the maps and profiles.

#### Baltimore, Chesapeake & Delaware Bay.

Grading is in progress between Greensborough and Queens-town. It has been decided to make Queenstown the western terminus instead of crossing Kent Narrows and running across Kent Island to the Bay shore.

#### New York and Oswego Midland.

The bill to facilitate the reorganization of roads sold under foreclosure, which was passed by the late New York Legislature, has been signed by the Governor and has become a law. It is general in its terms, but was drawn up with special reference to the Midland. It provides that in case of a legal sale of the property and franchises of any road, the purchasers on organizing and filing a certificate with the Secretary of State shall become a corporation and succeed to all the rights and franchises of the old company. It may issue stock, preferred stock and bonds according to any plan or agreement made, and may compromise, settle or assume any obligations of the old company. The original stockholders, including the authorities of any municipal corporation holding stock, shall have the right to assent to the plan of reorganization at any time within six months of its date and will be entitled *pro rata* to its benefits.

A circular issued by A. D. Mather & Co., bankers of Utica, invites holders of first-mortgage bonds to meet in Baggs' Hotel, Utica, N. Y., May 26, at 12 noon, to consider some plan for the protection of their interests. A large amount of the bonds is held in that part of New York.

The foreclosure suit under the first mortgage will come up in the United States Circuit Court June 1.

#### Southwest Pennsylvania.

This road is to be extended the present season from Connellsville, Pa., to Mount Braddock, a distance of seven miles. This extension will bring the road into direct competition with the Pittsburgh, Washington & Baltimore's Fayette Branch for the trade of a large coke district.

#### Canada Southern.

The books and other property of the company in New York were attached at the suit of Thomas and John G. Musgrave, bankers, who sought to recover some \$64,000 money loaned to the company. The President was absent from the city and the books and securities had been removed from the office, but were finally discovered in the office of one of the company's counsel. Other suits are said to be pending.

It is reported that the Chicago & Northwestern and Rock Island companies are trying to make some arrangement to relieve the company from its troubles and complete the line to Chicago, but the report is probably unfounded.

#### Kansas Midland.

The Superintendent informs us that eight miles of the track were laid during April, between Topeka, Kan., and Lawrence, and that the line between Lawrence and Kansas City will soon be put under contract.

#### The Wisconsin Railroad Law.

The Attorney-General has given his opinion that the law is constitutional, and measures are to be taken to enforce it. The Wisconsin Central and Mineral Point companies have given notice of their intention to comply with the requirements of the law.

#### The Baxter Steam Canal Boat.

The Baxter Steam Canal Transportation Company has already two boats running on the line from New York to Buffalo, by the Erie Canal. Five more boats are nearly finished, and the company hopes by August to have 25 boats on its line. These boats are supplied with the Baxter engines and are built on the plan of the William Baxter, which was the successful boat in the competition for the State prize last fall.

#### St. Louis & Memphis.

Surveys are being made of a line about 90 miles long from the St. Louis, Iron Mountain & Southern road south by east to Memphis. It is said that contracts will soon be let.

#### The Illinois Tax on Capital Stock.

The injunction cases to restrain the collection of the tax on capital stock have been laid over to the June term of the United States District Court at Springfield, Ill.

#### Philadelphia & Newtown.

The grading has been completed as far as Fox Chases, but tracklaying has been delayed by the necessity of completing some bridge work. Tracklaying will be commenced very soon.

#### Missouri, Kansas & Texas.

The stock yards at Denison, Tex., have been much enlarged and a full supply of water secured. The cattle business has opened well and promises to show a considerable increase over last season.

#### Chesapeake & Ohio.

The company is now transporting 15,000 tons of coal for the Spanish navy from Coalburg, W. Va., to Richmond, whence it is shipped to the depots in Cuba.

#### Allegheny Valley.

The last report of the Pennsylvania Railroad Company shows that it has secured a controlling interest in this company. At

the recent annual meeting of the Allegheny Valley Company the Pennsylvania representatives voted on a little over 25,000 shares. The two companies have been working together for some time past, the new Eastern Extension or low-grade line having been built mainly for the Pennsylvania traffic.

Regular trains have commenced running over the Eastern Extension, from Red Bank to Driftwood.

#### International & Great Northern.

The mandamus case, on the decision in which depends the question whether the recent act of the Texas Legislature regarding the International bonds shall go into operation or not, was being argued before the Texas Supreme Court at Austin last week. The Court was expected to give its decision this week.

#### Delaware, Lackawanna & Western.

Arrangements have been completed for changing the gauge of the Utica line. The road is divided into four sections, each about 20 miles. Work will be begun May 18, and one section changed each day, taking four days in all. The line to be changed is from Norwich, N. Y., to Utica, 54 miles, and the Richfield Springs Branch, 21 miles. The change from 4 feet 8½ inches to 6 feet is something unusual, nearly all previous changes having been from wider gauges to the standard.

A very large trestle with chutes for transferring coal to the New York Central cars has been built at West Utica.

#### Washington & Chicago.

Surveys and estimates for this road have been completed. The length of the road from Washington, Ind., on the Ohio & Mississippi, northwest to Carlisle on the Evansville & Crawfordville, is 24½ miles, and the estimated cost of the road complete is \$500,000. Another line was surveyed from Washington to Sullivan, 26½ miles long.

#### New York and New England.

At an adjourned meeting in Boston, May 5, the committee previously appointed made a further report. The trustee's debt is \$473,500, which must be paid before the road can be transferred to the company. The receiver's certificates are \$265,000, and are due July 1. The committee recommended an issue of \$10,000,000 of 7 per cent. gold bonds, secured by mortgage on the road. The recommendation was adopted, but further action was postponed for a week. It is stated that a number of stockholders have agreed to take some of these bonds.

Certificates for 36,000 shares have been issued in exchange for the \$3,000,000 Berdell bonds held by the State of Massachusetts.

#### Columbus, Chicago & Indiana Central.

W. B. Skidmore, of New York, has filed a bill in chancery against this company in the United States Circuit Court in Chicago to compel the payment of a judgment of \$7,000 recently recovered against the old Chicago & Cincinnati Railway Company, now included in this company. The Pittsburgh, Cincinnati & St. Louis, as lessees, and the Pennsylvania Company are also made defendants.

#### Lehigh Valley.

This company has purchased from the Philadelphia Coal Company a controlling interest in the leases of its three collieries on the Girard estate in the Mahanoy region. The price paid is said to be \$800,000. The leases have 11 years to run with a right of renewal. The three collieries produced last year 300,000 tons of coal. This purchase trenches a little on the field heretofore occupied by the Reading Company.

#### Federal Creek Valley.

This road is intended to leave the Marietta & Cincinnati at the crossing of Federal Creek, near Big Run, O., follow Federal Creek about five miles and run thence by way of Sharp's Fork into the valley of the Muskingum River, connecting with the Muskingum Valley road near Moxahala. The length of the road will not be over 30 miles. It is intended to open up the deposits of coal and iron known to exist in the valley, as well as petroleum.

#### Knoxville & Charleston.

The Tennessee Railroad Commissioners have made a lease of this road for two years to Jeremiah Cowles, of Macon, Ga., Thomas Ritchie and Allan Hay, of New York, and M. G. Edison, of Montreal, Can. The rental is \$1,000 per annum, with the privilege of purchasing at any time during the lease for \$100,000. The lessees will take possession June 1. The parties are connected with a projected line called the Macon & Cincinnati, and one of them is or was a director in the New York, West Shore & Chicago, the New York, Westchester & Boston and various other companies not showing many signs of life just now. The road is 16 miles long, from Knoxville, Tenn., south to Maryville, and was intended to be the Tennessee end of the Blue Ridge road.

#### Cairo & St. Louis.

A meeting of the directors, at which a representative of the Amsterdam bondholders was present, was held at Murphysboro, Ill., May 4. An extension of time for the completion of the road was granted to the contractors, H. B. Payson & Co., who will now be required to begin work by June 1 and finish it by November 1. Of the 60 miles of road unfinished, between Murphysboro and Cairo, a large part is graded and tied, and iron for 40 miles is at Cairo.

#### Fredericksburg and Gordonsville.

The Virginia Legislature has authorized this company to make connection with the Chesapeake & Ohio near Gordonsville.

#### Utica and Black River.

Work has been resumed on the extension of the road northward to Morristown, N. Y. Iron for the track from Theresa to Redwood has been received.

#### Adrian & State Line.

The Circuit Court has decided that James Berry is the legally elected President of the Adrian & State Line Railroad Company, and, as such, is authorized to spend the money collected on subscriptions.

#### New York & Eastern.

This company, which intends to build a new line from New York to New Haven, has effected a perpetual contract by which it secures the use of the New Haven & Derby Company's property in New Haven and its track for three miles westward from that city.

#### Toledo, Wabash & Western.

The round-house at Springfield, Ill., was destroyed by fire May 6, and the tools and machinery therein badly damaged. The loss is stated at \$10,000, which is fully covered by insurance.

#### Joliet & Northwestern.

This company filed articles of incorporation with the Secretary of State of Illinois, May 7. The road to be built is from Joliet, Ill., north by west to Elgin, a distance of about 40 miles. The office of the company is at Joliet, Ill.

#### Pacific Traffic.

The first through train over the new line which is to carry through freight from the Union Pacific arrived at Kearney Junction, Neb., May 7. This line leaves the Union Pacific at Kearney Junction, 195 miles west of Omaha, and runs

over the Burlington & Missouri River in Nebraska to Hastings, the St. Joseph & Denver City to St. Joseph, Mo., the Hannibal & St. Joseph to Quincy, Ill., the Quincy, Alton & St. Louis to East Louisiana and the Chicago & Alton to Chicago.

The Union Pacific Company has built a transfer house 1,800 feet long and has laid down the necessary side tracks at Kearney Junction.

#### Selma, Rome & Dalton.

An appeal has been taken from the decision of the Chancellor to the Alabama Supreme Court. The sale will in consequence not take place unless the Supreme Court confirms the Chancellor's decision.

The section of the road in Georgia, from the State line to Dalton, 64 miles, is advertised to be sold at the court-house in Rome, Ga., July 14.

#### Frederick & Pennsylvania Line.

A special meeting of the stockholders is to be held June 9 to consider the question of leasing the road.

#### Mississippi Central.

The Vicksburg Herald states that a meeting of the stockholders is to be held at Water Valley, Miss., May 26, to take action on an agreement of consolidation with the New Orleans, Jackson & Great Northern Company.

#### Washington City, Virginia Midland & Great Southern.

Regular trains commenced running through to Danville, Va., May 1. Two trains daily are run over the new line from Lynchburg to Danville.

#### Utah Northern.

The track is laid to Franklin, Idaho, 16 miles beyond the late terminus and 61 miles from Brigham Junction, Utah, the present southern terminus. Trains were to begin running through to Franklin May 7.

#### Chautauqua Lake.

It is proposed to build a railroad of 3-feet gauge from Mayville, N. Y., southeast along the shore of Chautauqua Lake to Jamestown and thence to Falconer on the Dunkirk, Allegheny Valley & Pittsburgh road, a distance of about 24 miles. The line passes through a good country, and the summer travel to the lake is becoming quite large.

#### Painesville & Youngstown.

Tracklaying is progressing steadily, and it is hoped that the road will be finished to Niles by the end of this month.

#### St. Louis, Iron Mountain & Southern.

The stockholders of the Cairo & Fulton at a special meeting voted to ratify the agreement of consolidation with the St. Louis & Iron Mountain. Subsequently the new company was fully organized under the above name, and directors and other officers chosen. The new company owns the following lines:

St. Louis, Mo., to Texarkana, Tex.	490 miles
Bismarck, Mo., to Belmont	120 "
Poplar Bluff, Mo., to Mississippi River opposite Cairo, Ill.	69 "
Mineral Point, Mo., to Potosi	4 "
Total	683 miles.

The capital stock of the company is \$26,500,000 (\$38,799 per mile), of which, however, \$5,051,050 is owned by the company. The funded debt is as follows:

St. Louis & Iron Mountain, first mortgage	\$4,000,000
" " " second "	4,622,000
Arkansas Branch bonds	2,500,000
Cairo, Arkansas & Texas bonds	1,500,000
Cairo & Fulton, first mortgage	8,000,000
Total (\$30,193 per mile)	\$20,622,000

As soon as possible the stock and bonds of the old companies will be exchanged for those of the consolidated company.

#### Alabama & Chattahoochee.

The foreclosure sale, which was to have taken place May 4, has been postponed to June 15, by order of the Court.

#### Mobile & Montgomery.

Travel on this road has been for some time interrupted by damage caused by high water, but has been partly resumed. The track between Tensas and Mobile is still almost entirely under water, but trains run to the Mobile River and there connect with steamboats to the city.

#### Pennsylvania-Amboy Division.

Nearly all of the machinery in the shops at Bordentown, N. J., formerly the principal shops for this division, has been removed. The work has been taken to the shops at South Amboy, which have been enlarged.

#### Davenport & St. Paul.

It is stated on the authority of the company's attorney that negotiations are going on for the transfer of a controlling interest in this road to the Chicago, Rock Island & Pacific Company, and that the matter will be closed up as soon as Colonel French, President of the Company, returns from Europe, where he is now trying to place a loan.

Arrangements have been made to have the suits with the City of Davenport as to the right of way into that city consolidated into one suit and brought to trial at once, in order that the controversy may be ended as soon as possible.

#### Rensselaer & Saratoga.

A general order has been issued requiring all employees to comply strictly with that clause of the Vermont prohibitory liquor law which forbids the transportation of liquor for or its delivery to any persons except the authorized liquor agents.

#### Atlantic, Tennessee & Ohio.

The County Commissioners of Mecklenburg and Iredell counties, N. C., held a joint meeting May 1, in regard to taking action to prevent the sale of the Atlantic, Tennessee & Ohio Railroad under the claim of the National Bank of Columbia. No action was taken and the meeting adjourned until the 11th.

#### Los Angeles & Independence.

This company has been organized and subscription books for the stock opened. The road is to extend from Los Angeles, Cal., northward 250 miles to Independence. It is intended to complete as soon as possible enough of the line to connect Los Angeles with the Cerro Gordo mining district. It is to be of 3-feet gauge.

#### New York & Long Branch.

It is proposed to extend this road, now under construction, from Long Branch southward along the shore through Ocean Grove, Shark River and Squam t. Tom's River. It is said that if the grading and bridging are done the New Jersey Central Company will iron and equip the line. The road would be about 28 miles long and would be nearly parallel to and about five miles from the New Jersey Southern. It would be of little value, except for summer travel.

#### Indiana & Illinois Central.

At the annual meeting in Indianapolis, May 6, it was determined to endeavor to raise the money necessary to extend the road from its present terminus at Montezuma, Ind., eastward to Indianapolis. The distance is about 66 miles.

#### Cairo, Arkansas & Texas.

Concerning this road a correspondent writes to us from St. Louis as follows:

"The Cairo, Arkansas & Texas Railroad, together with the



Cairo & Fulton (of Arkansas), has become consolidated with the St. Louis & Iron Mountain Railroad under the name of the St. Louis, Iron Mountain & Southern Railroad Company. "This road is most admirably located for controlling the through traffic between Texas and the East. It forms—by way of Cairo—almost an ideal air line for 1,300 miles, from Lake Erie to the Rio Grande, shorter by over 150 miles than any other route. Even from Cincinnati the distance is much less by this route, while from Chicago to Galveston a saving is made of 75 miles.

"The want of proper facilities at Cairo for transferring cars and connecting with the roads leading from there to the North and East has heretofore compelled the company to send all through business via St. Louis. It has, therefore, not been able to claim the advantages of the much shorter route that now presents itself. The completion of inclined planes at Cairo will open a new era in the Texas and Arkansas business.

"The new company has just purchased 400 stock cars and has erected the most commodious and convenient stock yards in the West at the junction and terminal stations.

"The whole route is built in the most substantial manner and is thoroughly equipped with the best of rolling stock. It has a land grant of 2,500,000 acres of good agricultural land, all of which has just been put into the market and is being rapidly sold to settlers."

#### Train Accidents in April.

About 3 o'clock on the morning of the 1st, on the Erie Railway at Basket Switch, the second section of a freight train ran into the preceding section, wrecking several cars loaded with oil, which took fire and were destroyed. A brakeman was badly burned.

On the 1st, on the New York & Oswego Midland Railroad, near Hell Hole, on the Beaverkill, two cars of a freight train jumped the track and went down the bank into the creek. The track at that point has been in very bad condition for some time.

About noon on the 21, on the Buffalo Division of the Erie Railway near Linden, N. Y., there was a bad collision between a west-bound passenger and an east-bound work train by which both engines and several cars were wrecked, the engineer and fireman of the work train and an express messenger injured. The accident is said to have been caused by the watch belonging to the work-train engineer being wrong.

About noon on the 21, on the Virginia & Tennessee Railroad in the Fort Homestead tunnel, two cars of a mixed train jumped the track and tore away some of the timbering of the tunnel. The accident was caused by the spreading of the track owing to a crack or crevice in the ground.

Early in the morning on the 4th, nine cars of an east-bound freight train on the Air Line Division of the Michigan Central Railroad broke off between Vandalia and Three Rivers, Mich., the rear car being a sleeping-car which was going to the shops for repairs. Before a flag could be put out a following freight train ran into this broken off section, throwing the sleeping-car over on its side, when it caught fire and was burned with two cars of grain. There was a little damage to the striking engine.

On the 4th, at Dayton, Ill., on the Fox River Branch of the Chicago, Burlington & Quincy Railroad, a passenger train ran through a misplaced switch into the head of a freight train, damaging the engines a little and severely injuring the passenger engineer, who jumped.

On the 5th, on the Delaware, Lackawanna & Western Railroad near Binghamton, N. Y., a special train ran into a hand-car and damaged the front of the engine badly.

On the 6th, on the Paris & Decatur Railroad near Mount Zion, Ill., two stock cars ran off the track and were completely wrecked.

On the night of the 6th on the Millstone Branch of the Pennsylvania Railroad, near East Millstone, N. J., two cars broke loose from a freight train, and, when the train was stopped on a descending grade, the detached cars ran into it, doing much damage.

On the 7th, on the Selma, Rome & Dalton road, near Patons, Ala., a bridge fell under a train, carrying the engine and four cars with it. The fireman was wounded so that he died in a short time; a brakeman and a mail agent were badly injured.

Very early on the morning of the 8th seven coal cars of a train on the Erie Railway jumped the track near Sloatsburg, N. Y., blocking the road two hours.

On the morning of the 8th on the Philadelphia & Reading road near Phoenixville, Pa., 30 cars of a coal train went into the ditch and most of them were wrecked.

On the 8th two coal cars jumped the track on a trestle in the Hoboken yard of the Delaware, Lackawanna & Western road and fell some 30 feet, being completely wrecked.

Early on the morning of the 9th, on the New York Division of the Pennsylvania Railroad, near East Newark, N. J., two cars of a freight train were thrown from the track and wrecked by a broken axle, blocking one track for three hours.

On the evening of the 9th, at Grafton, O., on the Cleveland, Columbus, Cincinnati & Indianapolis road, a passenger train ran into the rear of a freight which was just going on the side track. The locomotive and several cars were wrecked, and a woman, who was in the caboose, badly injured. A heavy snow storm prevented the engineer from seeing the signals.

Early on the morning of the 10th, near Boughton, Ark., on the Cairo & Fulton road, the trestle bridge over the Little Missouri River gave way under a train. The engine and baggage car went down in the river, killing the engineer. The river was swollen by a freshet.

On the 10th, on the Valley Division of the Baltimore & Ohio, near Tom's Brook, Va., several cars of a freight train were thrown from the track and wrecked by a rock which had fallen on the track.

On the 11th, an east-bound freight train on the Paris & Decatur road was crossing the bridge over Long Creek, near Mount Zion, Ill., the bridge went down, carrying with it four cars loaded with stock.

On the afternoon of the 11th, on the New York Division of the Pennsylvania Railroad, the engine of a construction train ran off the end of a siding in the gravel pit at East Newark and was badly wrecked.

On the evening of the 11th, as a passenger train on the New York Central & Hudson River was approaching the Rochester depot, an engine which was moving on a parallel track was thrown over on the main track by a misplaced switch and struck the train near the middle, upsetting two cars.

Early on the morning of the 13th, a freight train was thrown from the track on the Indianapolis & St. Louis road, blocking the track some hours.

On the 14th, on the New Haven, Middletown & Willimantic road, at Portland, Conn., a car loaded with rails broke loose and ran down grade to the bridge over the Connecticut, and the draw being open, went into the river.

On the 15th, on the Texas & Pacific, near Dallas, Tex., a bridge fell under a freight train, carrying seven cars down with it.

On the 15th, on the West Wisconsin Railroad, near Black River Falls, Wis., four cars of a freight train ran off the track and were wrecked, blocking the road four hours.

On the evening of the 15th, near the Union Depot in Indianapolis, an Indianapolis & St. Louis engine ran into a Vandalia line passenger train, through a mistake in signals.

On the night of the 15th, on the Richmond & Danville road,

near South Boston, N. C., the locomotive of a passenger train was thrown from the track by a tie laid across the rails for that purpose.

On the night of the 15th, on the Erie Railway, an east-bound freight train ran into a rock which had fallen on the track near Pond Eddy. The engine and eight cars left the track and were wrecked. The fireman jumped and was badly injured.

On the morning of the 16th, on the Alabama & Chattanooga road, a north-bound mixed train went through the bridge over the Tombigbee River, killing the engineer and fireman, and injuring a brakeman. A heavy rise in the river had washed out the supports of the bridge.

On the morning of the 18th, near White Bluff, Tenn., on the Nashville, Chattanooga & St. Louis road, a passenger train ran into the rear of a freight which had stopped to fix a slight breakage in the engine. Several cars were badly wrecked and the track blocked seven hours.

On the 18th, at Hoboken, N. J., on the Morris & Essex Division of the Delaware, Lackawanna & Western Railroad, a coal train was thrown from the track by a misplaced switch, and several cars were wrecked.

On the 19th, on the Winona & St. Peter Railroad, near Janesville, Minn., as some ties were being distributed along the road from a train while running, one fell on the track and threw off one flat car and the caboose, injuring the conductor.

On the afternoon of the 19th, on the Missouri Pacific, near Eureka, Mo., some ore cars of an Atlantic & Pacific train broke loose, and, before any signal could be sent out, a freight train which was following ran into the detached cars. The engine and several ore cars were wrecked.

About 2 o'clock on the morning of the 20th, on the New York Central & Hudson River road, near Rochester, N. Y., some cars of a west-bound freight train ran off the track.

The locomotive of this train was sent forward to Rochester for help, and near the depot in that city it ran into an east-bound train, damaging both engines.

On the morning of the 20th, on the Morris & Essex Division of the Delaware, Lackawanna & Western Railroad, three cars of a freight train were thrown from the track at the west end of Bergen Tunnel, blocking the road nearly three hours.

About noon on the 20th, a coal train on the Erie Railway ran into a rock which had fallen on the track at Starway. The engine and 10 cars were thrown from the track and wrecked, blocking the road six hours.

On the 20th, at Martinsburg, W. Va., on the Baltimore & Ohio, some freight cars broke loose from a train and ran back to the depot, striking and badly damaging an engine which was standing there.

On the 20th, a wood train on the Bridgeton & Port Norris road ran off the track near the depot in Bridgeton, N. J.

On the morning of the 21st, a freight train on the Erie Railway was thrown from the track by a misplaced switch at Mast Hope, wrecking the locomotive and several cars and damaging a bridge.

On the 21st, on the European & North American Railroad at Walsford, N. B., a stick of cord wood fell from a flat car of a mixed train upon the track, throwing several box cars from the track and down a bank. The track was badly damaged.

On the night of the 21st, on the New York, New Haven & Hartford Railroad at Westport, Conn., the center-pin of the forward truck of a stock car broke and the truck pulled out, letting the end of the car down on the track. The train was delayed three hours.

On the morning of the 22d, a west-bound mixed train on the Iowa Midland Railroad had two cars thrown into the ditch by a fence post getting between the wheels, as the posts were being distributed along the line. The truck had no safety chains.

On the night of the 22d, six cars of a freight train on the Winona & St. Peter Railroad were thrown from the track near Chester, Minn., by the spreading of the rails, injuring the conductor.

Very early on the morning of the 23d, the caboose car of a freight train on the Indianapolis, Bloomington & Western jumped the track near Crawfordville, Ind., and after running some distance on the ties went down a bank and upset, injuring a brakeman.

On the 23d, on the Lake Shore & Michigan Southern Railway near Hudson, Mich., two cars of a freight train jumped the track, went down a bank and were wrecked.

On the night of the 23d, on the Chicago, Rock Island & Pacific, near Altoona, Ia., there was a bad collision between two freight trains, by which a number of cars were wrecked.

Very early on the morning of the 24th, the steamboat express on the Norwich & Worcester Railroad was thrown from the track by a broken rail near Allyn's Point, Conn. The engine, baggage car, express car and smoking car went down the bank and were badly wrecked, but none of the passenger cars left the track, being saved, it is thought, by the air brakes. The baggage master was caught between the baggage and the stove and was crushed and badly burned.

On the morning of the 24th, at Vail's Gate Junction, on the Newburg Branch of the Erie Railway, a locomotive and 16 cars of a coal train went through an open switch and down the bank, blocking the road half a day.

On the 24th, some cars of a freight train on the Missouri Pacific road were thrown from the track near Sedalia, Mo., blocking the road some hours.

On the night of the 25th a passenger train on the Louisville, Cincinnati & Lexington road was thrown from the road by a misplaced switch.

On the afternoon of the 27th, on the Marietta & Cincinnati road at Belpre Junction, O., a freight train ran into another which was just going on a side track, wrecking one engine and nine cars and injuring the engineer.

The engineer and fireman of the other engine put on all steam and jumped, when the engine with four cars broke loose and started westward, and after running several miles with no one on board, ran into the head of a passenger train wrecking both engines and one passenger car.

On the night of the 27th, on the Montpelier & Wells River road, near Montpelier, Vt., the engine of a mixed train ran off the track and down a bank 20 feet high, seriously injuring the engineer.

On the 28th, on the West Wisconsin Railroad near Camp Douglas, Wis., a car of a freight train jumped the track, delaying trains some time.

On the 28th, on the West Wisconsin road near Humbird, Wis., four freight cars were thrown from the track and wrecked.

On the evening of the 28th, on the Milwaukee & St. Paul at Hastings, Minn., three cars of a freight were backed off the bridge over the Mississippi into the river, it is stated, through the carelessness of the engineer.

On the 29th, on the Galveston, Houston & Henderson road, as a train was backing on to the Galveston Wharf, two cars jumped the track and demolished a cistern which stood near the track.

On the evening of the 29th, at the junction of the Toledo, Wabash & Western and Chicago, Burlington & Quincy roads, at Camp Point, Ill., the engine of a Wabash express train was thrown from the track by a defective switch. The engine ran some 15 feet from the track and upset.

On the afternoon of the 30th, the engine and six cars of a freight train left the track and went into the ditch near Elmwood, Ill., on the Chicago, Burlington & Quincy's Peoria Branch.

This is a total of 59 accidents whereby three persons were killed, and 12 suffered serious injuries.

Two accidents only caused loss of life, and 10 others injury, leaving 47 which caused no injury to persons.

These accidents may be classified according to their nature and causes as follows:

COLLISIONS:	
Rear collisions.....	8
Butting collisions.....	5
Broken rail.....	1
Crossing collision.....	1
Unexplained.....	2
—16	
DERAILMENTS:	
Unexplained.....	17
Breaking of bridge.....	5
Misplaced switch.....	4
Rocks falling on track.....	3
Tie or post falling from a car on the track.....	3
Spreading of track.....	2
Open draw.....	2
Broken rail.....	1
Broken track.....	1
Broken axle.....	1
Defective switch.....	1
Bad track.....	1
Malicious obstruction.....	1
Running off the end of blind siding.....	1
—43	
59	

Two collisions were caused by trains breaking in two, one by a misplaced switch, one by the engineer abandoning his engine, and one, which nevertheless did considerable damage, was with a hand car. Twelve accidents were caused by defects or failures of road or equipment. One derailment is recorded as being caused by bad track; probably others should come under the same head. Four of the five failures of bridges were caused by the washing out of abutments; the cause of the fifth failure is not reported.

The number of accidents is smaller than that recorded during any month for the last year, and without any apparent reason. The unusually mild winter has left most roads in a better condition than is common at this season; but, on the other hand, there has been much damage done during the month by floods and high water. The proportion of collisions is noticeably large for the month.

For the year ending with April the record stands as follows:

	No. of accidents.	Killed.	Injured.
May.....	79	30	113
June.....	90	12	124
July.....	50	18	80
August.....	100	69	155
September.....	106	29	75
October.....	83	11	47
November.....	76	11	50
December.....	80	16	43
January.....	108	18	98
February.....	90	25	45
March.....	88	13	49
April.....	59	3	12
Totals.....	1,104	229	876

The average per day for April is 1.97 accidents, 0.1 killed and 0.4 injured; for the year it is 3.02 accidents, 0.63 killed and 2.40 wounded.

#### Effect of Hostile Legislation on Railroad Construction.

The following is a portion of the address of Mr. Wm. E. Dodge, President of the Chamber of Commerce, made at the annual banquet of the New York Chamber of Commerce, May 7:

Since last we met, the commercial interests of the country have been called upon to face another severe financial crisis, and though our me chants, with very few exceptions, have passed through it triumphantly, yet I fear we have far from recovered from its effects. Our foreign trade was, apparently, more in our favor than for many years previous; our grain, cotton, and other exports were in good demand in other countries, and our crops unusually large. But it appears to me more difficult to realize that so vast an interest as our railroad system has become, could have increased since the commencement of the war from 31,000 miles to 75,000 miles, with an expenditure of more than one thousand five hundred million of dollars, without bringing about a crisis in our financial system; and while all are now ready to admit that the demands of the people in all sections for the extension of railroad facilities have led to too rapid construction, yet it should be always kept in mind that while those interested in their construction may have been great losers, yet the country, as a whole, has been largely benefited, and this vast expenditure has actually added to the real value of the whole country many times the cost of the roads. I think it is very easy to account for the present stagnation of trade, when we consider the fact that during the past eighteen months there has been developed a systematic opposition to railroads, which was commenced by the farming interest of the West, has spread to almost all parts of the country, and has become an organized political power, leading the Legislatures of some of the States to enact laws which, if sustained and carried out, must destroy confidence in railroad investments. The very agitation of these railroad questions in the State and National Legislatures has alarmed capitalists at home and abroad, and as they see this vast interest passing from the control of the stockholders and directors into the hands of political commissioners, who are to attempt to regulate prices of transportation in the interests of the producers, they very naturally hasten to dispose of their investments, and railroad securities which but a short time ago were sought after with confidence, are now considered very uncertain, and have been for months past crowded on the market until they have declined so fearfully that the very stock list is constantly increasing the distrust. But for this war on the railroads, men of property would have held these securities until the growth of the country would have given them permanent value. We now see this great interest prostrate, and the various branches of industry which it has fostered paralyzed. The iron manufactures which have sprung into life all over the country are the offspring of our railroads; so the locomotive and car-building, the axle, the spring, and the wheel works, and the hundred other manufactures depending on the prosperity of the railroads, are crippled, and many of them ruined. Thousands and thousands of operatives in these various manufactures are idle, and rolling mills, furnaces and foundries are all standing still, because the States and the nation have struck a deadly blow at this great interest.

If this war is to go on, and the States attempt to enforce laws which destroy the vested rights of those who have advanced their money to build these lines, so vital to the country, then these roads must and will become political powers in all sections, and those who now oppress them will in their turn become the sufferers. Is it not time that the business men of the country should look carefully to see what